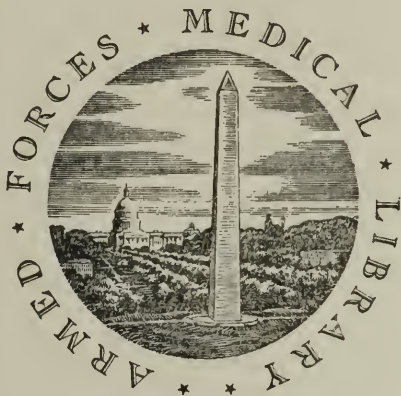


WBC
C879^p
1841

UNITED STATES OF AMERICA



FOUNDED 1836

WASHINGTON, D.C.

DUE  FROM LAST DATE

AUG 24 1964

BY 27 64

ON THE
CURE OF BRONCHITIS,
Consumption, &c. &c.
BY INHALATION.

BY
EDWARD L. COXE, M. D.

1871

1872

1873

1874

1875

7775

John F. ...

A

PRACTICAL TREATISE

ON

MEDICAL INHALATION,

WITH

NUMEROUS CASES DEMONSTRATING THE CURATIVE POWERS
OF THE LOCAL APPLICATION OF VARIOUS REMEDIES IN

BRONCHITIS, CONSUMPTION,

AND OTHER

Diseases of the Respiratory Organs;

EMBRACING THE OPINIONS AND EXPERIENCE OF

RUSH, SIR CHARLES SCUDAMORE, EBERLE, MUDGE, CRICHTON, THOMAS
CORRIGAN, RAMADGE AND OTHERS.

BY

EDWARD JENNER COXE, M. D.

W

Non scribo hoc temere. Quo minus familiaris sum, hoc sum ad investigandum curiosior!
—Cicero's Epistles.

~~~~~

PHILADELPHIA:

J. DOBSON, 106 CHESTNUT STREET.

1841.

7775

W B C  
C 879 P  
1841

*File # 4346, m 3*

Entered according to the Act of Congress, in the year 1841,  
by J. DORSON, in the Clerk's Office of the District Court for  
the Eastern District of Pennsylvania.



## TO THE

**Members of the Medical Profession.**  

---

THE object of the following remarks upon medical inhalation, is to collect in one work, the scattered observations of many writers upon the subject, thereby more particularly directing the attention of medical men to a plan of treating consumption, bronchitis, and other affections of the respiratory organs, which, although not possessing the merit of entire novelty, has, until the last few years, been too much neglected.

The vast importance of those diseases for the treatment of which this direct local application of remedies is peculiarly appropriate, has caused it once more to be brought into notice, and with such an accumulated mass of facts in support of its value, as to warrant the belief of its being assigned a very prominent and permanent place among the various plans of treatment for many pulmonic diseases. Among the different authorities who have proclaimed the curative powers of

medical inhalation, no one has pursued it with such perseverance, or given to the profession so many well attested cases of its efficacy, as Sir Charles Scudamore, whose reputation and experience are alone sufficient to entitle it to the confidence and consideration of the profession.

His work and communications in several of the English medical periodicals contain so much really practical information upon this subject, that I have thought the interest of the profession, and the benefit of mankind would be most advanced by presenting the greater part of his observations in his own language, and I sincerely hope, as I really believe, that the success which he, as well as many others, and myself have derived from this auxiliary mode of treatment, will prove equally great in the hands of other physicians.

It may not be improper to remark that I had derived all my experience, and written these remarks, before I was aware of the existence of the valuable observations of Sir Charles Scudamore and a majority of those whom I have consulted; consequently, the coincidence of views and results which will be found to exist, cannot but be considered an additional argument in favour of the curative powers of the direct applica-

tion of remedies to diseases of the lungs. In consequence of not being engaged in the practice of medicine, my observations and experience have necessarily been limited; firmly convinced, however, as I was of the unquestionable value of medical inhalation, in many diseases of the respiratory organs, it was with the greatest pleasure I found the authority and experience of many medical men well known to the profession, could be adduced in support of its positive curative powers; and I think I may with confidence assert, that these remarks will be found to contain all the information necessary to enable medical men to pursue this highly interesting and important subject with advantage.

Although medical inhalation will not, and necessarily cannot, in all cases, succeed in effecting the utmost of our desires, it will, under the most adverse circumstances, generally prove a valuable palliative, and but little, if any doubt can reasonably be entertained of its coming into general use, and forming a new era in the treatment of consumption, bronchitis, and other diseases of the air passages.

Confidence in the real value of this remedial means, an ardent desire to do all in my power, as a member of the profession, to alleviate the

sufferings of the sick, and contribute my humble efforts to the advancement of the most interesting part of the science of medicine, that of curing disease, have been my sole reasons for appearing before the public; and I hope all inaccuracies of style, or other defects, will be overlooked by those to whom I dedicate these remarks, and prove a sufficient apology, if such be necessary, for endeavouring to bring more generally into notice the important subject of Medical Inhalation.

EDWARD JENNER COXE, M. D.

29 Camp street, New Orleans.

# T R E A T I S E

ON

## MEDICAL INHALATION.

THAT the prevention and cure of some of the most frequent and generally fatal diseases to which mankind is subject, may justly be considered among the most important and interesting of medical investigations, cannot admit of a doubt; and when the long continued suffering, and exceeding great mortality caused by the various diseases of the respiratory organs are seriously reflected upon, any measure calculated to lessen the amount of human suffering, and arrest the slow, though generally sure approach of death, must certainly be considered deserving the most serious consideration, and meriting a fair and full trial from the medical profession; those to whom the world appeal with confidence, for relief, when disease with her protean form, may truly be said to have commenced an attack upon some of the most important organs of the human body, with a power to almost bid defiance to the means generally brought to bear against her destructive career. From a very distant period to the present time, consumption, as also the numerous diseases incident to the *larynx*,

*trachea*, and *bronchia*, have engaged the talents and untiring application of very many members of that profession, whose noble occupation is the endeavouring to alleviate the sufferings of their fellow beings, by a successful application of the various means appertaining to the different branches of medicine.

Painful as must be the admission, our science has to regret, that among the few diseases which to this day continue to be ranked as the *opprobria medicinæ*, none have proved more generally invincible, than many of those to which the different parts of the respiratory organs are subject.

In proof of the inability of medicine to materially arrest the fatal progress of many diseases of the respiratory organs, we need but refer to the bills of mortality in almost every section of the globe; and, as further illustrative of this melancholy fact, it may be mentioned, that in England, at the present day, it is estimated that of the annual deaths, about one fourth is caused by consumption; and Sydenham long since was of opinion, that the fifth part of mankind died of this disease.

Disclaiming any pretension to novelty in this direct local application of remedies to the various diseases of the respiratory organs, my sole wish is to endeavour to place before the profession as much testimony upon the subject as possible, and with that view I shall draw largely from those who have recorded the results of their experience with it.

In the course of these remarks, I hope to be

able to prove most conclusively, that, to the treatment of many diseases of the larynx, trachea, bronchia, and lungs, medical inhalation is not only peculiarly applicable, but that upon many occasions, it has displayed unequalled powers in the cure of many diseases of those organs which had baffled the usual resources of our art, and which, as a necessary consequence, fully entitle it to be ranked among the most decidedly useful means which can be employed for the treatment of those diseases.

That this simple, powerful, and most efficient auxiliary has been entirely too much, and too long overlooked by medical men, I feel no hesitancy in avowing as my decided opinion; for, independently of the observations of many well known medical men, positive experience in my own person, as well as upon many others, fully authorizes my asserting most decidedly, that medical inhalation, as I am accustomed to employ it, has succeeded in perfectly overcoming that chronic disease, implicating the larynx, trachea, or bronchia; generally, however incorrectly, termed bronchitis, without reference to the precise seat of the disease, though in a practical point of view it may be considered a matter of no importance.

From the great frequency of the disease of the mucous membrane of the parts just named, the difficulty, and in many cases, the impossibility of effecting a perfect cure with the ordinary plan of treatment, it has become a subject not only of common observation, but of very general interest.

'The value and efficacy really belonging to this remedial measure, may to a certain degree be estimated from the fact, that in every case in which I have successfully employed it, not only was the disease of many years duration, but the long continued trial of the various remedies generally recommended, and upon whose curative powers the most experienced of our profession almost solely depend, had proved entirely ineffectual.

In order to prevent misconception as to my ideas of the value of this important, though too much neglected mode of treatment, I consider it proper explicitly to state, that I by no means wish to ascribe to medical inhalation, so universal, or absolutely certain a curative power in the various diseases of the organs of respiration, as to enable physicians to dispense with those acknowledged beneficial remedies in common use, and with which this method of treatment may most judiciously and successfully be conjoined. I cannot, however, forbear expressing my belief, based upon experience, that medical inhalation, more especially in chronic diseases of the mucous membrane of the larynx, trachea and bronchia, is, by itself, when properly applied, capable of effecting as much, if not more real benefit, than can be accomplished by the conjoined powers of the various remedies for those diseases in general use at the present day.

Regarded as a powerful *auxiliary* to the ordinary modes of treatment of the various diseases of the air passages, I consider medical inhalation



justly entitled to a fair and ample trial, and from a due consideration of the testimony which will be brought forward in support of its remedial powers, I feel satisfied that if such be awarded to it, physicians will find the treatment of many of those diseases hitherto surrounded with difficulties, rendered much more certain and easy, and to the manifest advantage of their patients.

Although I have most frequently employed medical inhalation for the treatment of chronic diseases of the mucous membrane of the air passages, there can be no question of its judicious application proving eminently serviceable as an auxiliary, in the various acute diseases so common to the pulmonic system, as well as to that most frequent, and generally fatal disease, consumption.

When we consider the importance of a perfectly healthy condition of the mucous membrane of the respiratory organs to the whole system, the numerous causes, either local or general, capable of exercising a morbid influence upon it, as well as the great increase and acknowledged difficulty of curing many of those diseases to which the various parts of this membrane are subject, it cannot be considered strange that I should endeavour to direct the attention of medical men more particularly to medical inhalation, by concentrating the observations of others as well as my own experience upon so important a subject, especially as I can with truth aver, that in every case in which I have employed it, the effect has been either an entire cure, or so

decided an amelioration, as to call forth the warmest approbation from those to whom it had been ordered.

In reference to my own case, the first in which I had ever tried it, it may not be amiss to state, that for years I had given a fair and ample trial to all the remedies which were suggested by many of the most experienced American and French physicians, without being able to effect more than an alleviation of some of the most distressing symptoms attendant upon a chronic disease of the mucous membrane of the trachea, with considerable purulent expectoration. Even this alleviation could only be finally accomplished by abandoning the practice of my profession, and calling into requisition the advantages of sea voyages, a long residence in warm climates, in conjunction with such other means as were considered appropriate, all of which will be more particularly noticed in the history of the case. Such being the fact, as is well known to a number of medical and other friends, and considering the very great effect produced by medical inhalation, to which I fortunately had my attention directed by a casual reference to one of those authors who had successfully employed it, although in a different disease from that under which I was labouring, it would indeed be singular did I not attach very great importance to it.

This mode of treatment was eagerly seized upon, and by pursuing it regularly, and finally employing the most active medicines in a rather

different manner from that generally recommended, I succeeded in accomplishing that, which had previously appeared impossible, being now in the enjoyment of excellent health, and enabled to attend to the duties of an active life, either or both of which results, would, I suppose, be considered sufficiently strong arguments to any one who may have the misfortune of being similarly afflicted.

Like other individuals, I am liable to have the same part affected by an acute attack of inflammation; and, as might naturally be supposed, when we consider the abnormal condition of the mucous membrane, after so long an existence of a serious chronic disease, a more powerful impression would be expected in my case than in those whose organs had always been in a healthy condition prior to such an attack. Notwithstanding my having suffered frequently from such an acute attack, in the identical spot so long the seat of disease, I have each time been enabled to arrest its progress, and restore the parts to their usual healthy condition in the course of a week or ten days, without the necessity of confinement or the use of any other remedy.

In chronic diseases of the respiratory organs, so extremely susceptible do individuals become to a recurrence and consequent increased violence of the disease from the slightest exposure, and so anxious are all to prevent these repeated and almost unavoidable attacks, by enveloping the throat and breast in various thicknesses of

flannel, the daily repetition of the most active remedies, and an infinitude of deprivation of every kind, that none but those who have been compelled to endure these trials for years, can form the slightest idea of the real enjoyment resulting from an ability to throw aside such preventive and remedial measures, and participate in the active duties of life, free from the constant apprehension of the injurious effects so apt to follow a moderate exposure.

Medical inhalation having effected so much in my own case, as well as upon many others for whom I have ordered it, I cannot but consider it possessed of greater and more certain remedial powers than have been generally awarded to it, and consequently meriting the most serious consideration, and more frequent application.

Although medical inhalation does occasionally display its curative powers in a short time, it must not be supposed that such will invariably result, or that in all cases it will succeed in effecting a cure; like all other remedial measures, it must necessarily fail sometimes, but most unjust would it be did such cause it to be neglected; for, are we not accustomed in many diseases of the respiratory organs, to witness an almost constant failure of all the remedies that have ever been proposed for their treatment, still are they not only continued, but regarded as remedies upon which our principal reliance is placed.

That the practical application of medical inhalation is but little known, and in our country, still less employed at the present day, cannot

be denied. Let not, however, preconceived ideas as to its capability of effecting much or little good, prevent an impartial and sufficiently extensive trial of it; the responsible duties which medical men owe to mankind, to the profession, and to themselves, all equally demand that the merits claimed for this plan of treatment should be duly investigated; for, experience, derived from its practical application, can alone enable a correct estimate of its value to be formed. As will be seen in the course of these remarks, the testimony of many medical men of Europe and this country is most decided upon the curative power of the local application of remedies in consumption, and other diseases of the respiratory organs.

The endermic application of remedies for many diseases is now not only acknowledged to be of great utility, but more or less employed by most physicians; and with equal reason might it be denied that remedies so applied could produce their specific effects upon the system, as to assert that medical inhalation is incapable of exerting either locally, or constitutionally, any well marked curative powers in diseases of the respiratory organs.

The fact of the decided curative powers of medical inhalation, I consider well established, and those, who, labouring under any of the chronic affections of the respiratory organs, are generally made to depend upon the uncertain effects of sea voyages, and change of climate,

however inconvenient such may be, for a probable restoration to health, after a long continued though most frequently inefficacious treatment, have certainly a right to require from their medical advisers, that the alleged efficacy of medical inhalation, as a powerful auxiliary, be faithfully and fully tried in their cases.

It may be mentioned, as by no means a slight recommendation of this remedial measure, that it does not in any way interfere with any particular plan of general or local treatment which may be considered appropriate to each individual case, it being of easy application and productive of few, if any, unpleasant effects.

It may naturally be asked why medical inhalation, which is asserted to have been used with decided success in many of the diseases of the respiratory organs, should have been consigned to unmerited neglect, or why its real, or presumed merits have not been more generally commented upon in the many practical works recently published. Granting that this remedial measure may not have proved equally beneficial in the hands of all medical men who may have resorted to it, it certainly is no reason why a fair statement of facts should not have been presented to those who read for practical information, or why an enumeration of those diseases in which it has been successfully employed, as well as the various remedies recommended, and the best manner of using them should not have been detailed, thereby presenting to those members of

the profession, who might be disposed to direct their attention to the subject, certain data upon which to proceed.

In some practical works, it is true, we find slight allusions to the local application of remedies in diseases of the respiratory organs, but they are of so indefinite a character as to be illy calculated to convey any practical or really useful information.

It appears to me that various reasons can be assigned, to account in a measure, for the very little progress made in the correct application of medical inhalation; and, in the first place, there has been, I think, too much exclusiveness manifested in the selection of the articles employed, without that due attention to the existing symptoms, or stage of the disease, which is absolutely required.

As might naturally be supposed, a manifest difference of action, and consequent result, could not but happen under such circumstances; for with it, as with ordinary remedies, there is a proper time for resorting to them in all diseases; and in what, it may be asked, does sound medical judgment or experience consist, if it is not in the correct adaptation of the remedies employed, to the existing condition of the system and stage of the disease? and surely, the advocates of medical inhalation have a right to claim for it an equal discrimination in selecting appropriate remedies, as well as in their correct application.

Secondly, however beneficial the use of the fumigation of the vapour of tar, and similar ar-

ticles may have proved, more especially in consumption, it is unquestionable, that prior to their use, judging from the accounts given by the different writers, the disease had progressed so far, as to forbid the hope of benefit from any plan of treatment; and the only astonishment is, that under such circumstances, the slightest amelioration should have resulted, and yet we are informed that such was decidedly the case.

When it is considered that as a general rule, this local application of remedies was not resorted to until after every other remedy had been unsuccessfully tried, it might certainly be regarded as rather more than unreasonable to anticipate any positive remedial effect from medical inhalation, when resorted to at so unfavourable a period of the disease.

Thirdly, the inhaler used by those who recommend this local application of remedies, I presume to be that of Mudge, which I do not think is as well adapted for the use of many of the more active articles, as those I have had made much smaller, though upon the same principle. Besides, however perfect Mudge's inhaler may be made in England, it is certain that those called by his name, and manufactured in Philadelphia, have never been correctly made; and consequently, from their use, no possible good could reasonably be anticipated, as any one may convince himself, by examining them, and reflecting upon the manner in which a correct inhaler should be made, in order to produce medical inhalation properly so called.



The *modus operandi* of medical inhalation, as a remedial measure, may, I think, be regarded as two fold, depending entirely upon the condition of the individual for whom it may be ordered; first, a purely mechanical action, and secondly, the direct application of an air saturated with a part of the active principles of such medicines as may be selected for use.

By the first, we have the mucous membrane lining the air passages, the lungs themselves, as well as the thorax, so acted upon by a regular and slowly increased expansion of those parts, that like exercise upon the muscular system, an additional degree of volume and strength is acquired by them, and as a necessary consequence, a capability of resisting to a much greater degree those morbid impressions likely to result from an exposure to the various causes known to produce disease in the different parts of the pulmonary organs.

In the second place, I attribute very great remedial power to the direct local application of the active and peculiar properties of the various medicines employed.

Although it is doubted, and even denied by some, that such an effect can possibly result from medical inhalation, I feel thoroughly assured of the correctness of my opinion, inasmuch as positive experience has convinced me, that in very many cases, precisely similar effects have followed the inhalation of certain remedies upon the system as would have been produced by their internal administration, and it is utterly impos-

sible to account for the effects which have actually resulted, unless we admit the local and general action of such remedies; and, as will be seen, the testimony of other medical men upon this point is of the most positive character.

Was it considered necessary, additional proof of the correctness of such an opinion might be adduced from the experiments which have been made upon pulmonic absorption, without reference to its remedial application.

I assume it, therefore, as a fact which cannot reasonably be denied, that medical inhalation does possess positive curative powers in consumption, bronchitis, and other diseases of the pulmonary organs.

The importance of a regular and full expansion of the lungs in preserving those organs in a healthy condition, as well as the necessary influence exerted through them upon the entire system, must be manifest to every one, and we have naturally suggested to us, the propriety of bringing to our aid, as a preventive of disease, some of the powers of inhalation.

In youthful persons, where there is reason to apprehend a predisposition, either hereditary, or acquired, to disease of the lungs, as may frequently be discovered by the conformation of the thorax, as well as by attending to the process of respiration, have we not a right to infer that very great benefit will result from an increased exercise given to the lungs by a regular use of the inhaler; and there can be no question that many of the ill effects resulting from tight

lacing in females, would be prevented or removed by the same means.

In support of the correctness of these opinions, the well known effects produced by a regular and gradually increased amount of exercise, upon the muscular system, so frequently and beneficially recommended in a remedial point of view, may properly be adverted to.

That so desirable a result as the preventing or overcoming the first appearances of some of the diseases to which the pulmonic system is liable, by enlarging and strengthening those organs, is capable of being at times accomplished, we may, I think, derive an additional argument from the increased strength acquired by the lungs among the inhabitants of mountainous regions, or in those voluntarily undergoing the process of training; as in both instances, we know those organs are brought to support with perfect ease, such an amount of fatigue, that, to those unaccustomed to such exercise, although of athletic proportions, would be beyond imitation or endurance.

While endeavouring to produce so beneficial an effect upon the respiratory organs by so simple a means, we may in furtherance of it, and at the same time materially improve the general health, call to our aid the exercise of properly conducted gymnasia, the daily use of frictions, and such other means as are known to contribute to the same end.

The following remarks, coming from such high authorities, cannot be read without interest,

and must be considered strongly confirmative of the propriety of endeavouring to strengthen the pulmonary organs, to accomplish which, I have suggested that the inhaler be daily and regularly employed.

Dr. Good, in his study of medicine, observes, "A moderate use of the vocal organs, as of any other, tends to strengthen them, and to enable public speakers, singers, and performers on wind instruments, to go through great exertion without inconvenience, which would be extremely fatiguing to those who are but little practised in any of these branches; but the labour is often carried too far, and the lungs become habitually irritated, and hæmoptysis succeeds." In another place Dr. G. says, "the organs of respiration, like those of every other kind, derive strength instead of weakness, from a temperate use of them."

Dr. Rush, in his "account of the efficacy of common salt in the cure of hæmoptysis," says, his enquiries led him to attend more particularly to the following facts: "those persons who have been early instructed in vocal music, and who use their vocal organs moderately through life, are seldom affected by a hæmorrhage from the lungs. Lawyers, players, public cryers, and city watchmen, all of whom exercise their lungs either by long or loud speaking, are less affected by this disease than persons of other occupations."

Dr. Rush, in his Treatise upon Consumption,

also remarks: "the lungs, when debilitated, derive equal benefit with the limbs, or other parts of the body, from moderate exercise."

Whether all the beneficial effects that may justly be considered possible to result from the use of the inhaler, either as a preventive or curative agent, will be realized, must be determined by further observation; it is, however, to be hoped that the general want of success attending the present mode of preventing or curing consumption, will induce physicians to give a fair and full trial to a remedial measure which certainly appears well calculated to effect a great amount of good.

I believe it is unquestionable, that within the last twenty years, the existence of a disease implicating the mucous membrane of the larynx, trachea and bronchia, generally, though incorrectly termed by the public, bronchitis, without reference to the precise seat of the disease, has become much more frequent and difficult of cure than was previously observed.

It may not be altogether useless to endeavour to account for such a fact, for, if generally acquiesced in, it is possible some plan might be devised by which to lessen or counteract so constantly an acting morbid power.

It appears to me that the much greater frequency of these diseases, may be attributed in a great measure, if not entirely, to the introduction and very general use of coal fires; whereby, the atmosphere, so essential to a healthy action of the lungs, and through them of the whole sys-

tem, is to a certain degree vitiated by the removal of a greater part of its moisture, and its too general excessive heat.

That such a cause, a very hot and dry atmosphere, is capable of producing so injurious an effect upon the mucous membrane of the respiratory organs, as to render it morbidly sensible to atmospheric vicissitudes, and at the same time less able to resist the constant operation of so powerful an agent, appears to me almost capable of demonstration.

Few there are, I imagine, who have not experienced a dry and uncomfortable feeling in the throat, as well as a general uneasiness, when long compelled to breathe this dry and hot air.

It may also be remarked, that, upon the first introduction of furnaces into the cellars, it was of frequent occurrence to hear individuals complain of great uneasiness in the head and breast, most of which sensations have, however, entirely disappeared, since the adoption of a plan by which a large quantity of water is made to be evaporated, and circulated through the house, along with the heated air.

A large bucketful of water will, in this manner, be distributed through all parts of the house in the course of twenty-four hours, without any evidences of moisture being perceived.

What but injurious consequences could be expected from the application of a preternaturally hot and dry air to the delicate membrane lining the air passages, for a considerable period at a time, and then suddenly exposing it to the direct

action of an external atmosphere varying from thirty to fifty degrees lower than that just before breathed.

The following remarks of Mr. Carlisle, in a letter to Dr. Beddoes, are, I think, strongly in favour of the correctness of the above opinion:—

He says, “the gilders in London are very subject to consumption of the substance of the lungs, but no other scrofulous symptoms. They work in heated rooms, and are often induced to expose themselves suddenly to cold and damp. I am told six out of seven die in their apprenticeship.”

It were easy to augment the number of facts calculated to strengthen the above position, did not the object of these remarks preclude the possibility of more than a reference to such subjects as are only incidentally connected with it.

I shall commence my references to those authorities who have recommended the local application of remedies to diseases of the lungs, by the following extracts from a work entitled “A radical and expeditious cure for a recent catarrhus cough, by John Mudge, Surgeon, 1799.”

Every medical discovery, says Dr. M., has certainly a claim to the public attention, for though on a superficial view, the disease should seem slight, or the treatment trifling, yet when we reflect that the welfare of the great body of mankind is concerned, deriving consequence from that consideration, it swells into importance.

Upon the whole, if the remedy here proposed when early applied, and properly directed, (for

on both these its success entirely depends,) shall be found effectual, it will immediately and radically cure a complaint very troublesome and fatiguing, as it frequently harasses the patient some weeks. I shall not enlarge upon the probability there is that one part of this curative process, the use of the inhaler, may be extended to other beneficial purposes, though it by no means seems ill adapted to some species of asthmas, or perhaps even to peripneumonic complaints. Indeed, it was from a conviction that the catarrhus cough arose from some degree of actual inflammation of the pituitary lining of the organs of respiration, that the idea of this species of cure was first suggested; for if the disorder of the membrane is only the effects of a cause which is topical, sudden, and temporary, it becomes reasonable to suppose that a well adapted local remedy would be productive of the same good consequences in this as in any other species of inflammation.

Dr. Mudge concludes from his experience, that the two great indications of preventing an increased irritation by the cough, on the inflamed parts, and removing inflammation itself by such emollient applications as could most conveniently be applied to them, are thoroughly answered by opium, and the inhaling warm steams into the lungs, and he concludes by saying, that the fact is past dispute, that the conjoined powers of those agencies are a sure, and in general, an immediate cure.

Indeed, continues Dr. M., "the effect of this



remedy is so very sudden and certain, when used the same day the cold is contracted, that it was with difficulty, and not till after several trials, that I could myself credit the reality of the cure.

As I have, says Dr. M., all my life, from tender lungs, had a propensity on taking cold, to a cough of this sort, (which in the ordinary course of it, used to harass me for three weeks or a month, and sometimes much longer,) I was myself the first subject of the experiment. The night the remedy was first used, was passed without the least tendency to cough; and the next morning, by one or two very gentle efforts, a small quantity of concocted matter was discharged, without the least disposition to cough afterwards; notwithstanding which I could not be persuaded the whole succeeding day, that the cough was radically cured, and accordingly was in constant expectation of its return, which, however, it did not.

Van Swieten, in his commentaries upon Boerhaave, article Phthisis, remarks, "it is certain that steams and vapours drawn in with the air in respiration may be of use, as they every where come in contact with the whole aerial cavity of the lungs; and thus, various remedies may be applied, according to the various conditions of the ulcer."

In Dr. Rush's *Pringle*, chapter on pleurisy and inflammation of the lungs, we find the following remarks of Dr. P.: "I have likewise observed good effects from making the patient breathe over the steam of hot water; a practice

recommended by Boerhaave, and the Baron Van Swieten, and confirmed to me by the repeated trials of Dr. Huck, who found it more beneficial when the phlegm was viscid, as well as more grateful to the patient, by adding a small portion of vinegar." Dr. Rush in a note remarks, "too much cannot be said in favour of this simple and powerful remedy; the editor has seen patients snatched from the jaws of death by it."

*An account of some experiments made with the vapour of boiling tar, in the cure of Pulmonary Consumption, by Alexander Crichton, M.D., 1817.*

"An accident having led me last year to a discovery, which promises to be of importance in the cure of some varieties of Pulmonary Consumption, I feel it a duty to communicate the result as soon as possible, without waiting until a greater number of cases be collected, in which the remedy may have been successful; for I should deem it a just reproach, if, from any negligence on my part, or from an interested motive, I were capable of withholding the publication of any means whatever, that might save the life of a single individual, or even, that could diminish the sufferings of a numerous class of unfortunate patients, in favour of whom the medical art offers so few resources."

From a trial in many cases of consumption, of the plan proposed by Dr. Crichton, Drs. Bluhm

and Von Roos, who were specially charged with the treatment and observance of the facts, in each case, report as follows:

“The undersigned have the honour of laying before you the result of the trials made with tar vapour in the hospital for the poor, according to the directions we received from you.” After detailing the cases, they conclude as follows: “the result of our observations, is, that the tar fumigation produces a very quick and salutary effect upon the cough, expectoration, and respiration; that the sleep becomes more tranquil, continued, and restorative, and that the patient regains strength.”

“We have remarked, that at the beginning of this treatment the sweats are generally more profuse, but that these sensibly decrease in the course of a few days. Patients, who, before entering the tar vapour, kept their beds constantly, soon regained sufficient strength to rise from them, and walk about the ward the whole day. All those submitted to the tar fumigation have become convalescent; but it is too early yet to affirm that any are completely cured.”

From all we have hitherto seen of the tar fumigation, we must attest, that it appears to us the most efficacious means of relieving pulmonary patients.

Dr. Wochler also gives the details of one case in which the tar fumigations had a most happy effect, for he concludes by saying, “this patient is dismissed from the hospital to day, perfectly cured.”

The following are some of the remarks of Dr. Crichton on the cases given by the above physicians:—

“It must be evident from the preceding cases, that the tar fumigation, though completely successful in some of them, did not produce the same good in all; but on the other hand, the very great relief which every patient experienced at first from it, particularly in the diminution of cough, expectoration, and hectic fever, is a fact which ought to encourage us to multiply the trials of this remedy as far as possible.

The tar vapour seems to have healed the ulcers, and removed the inflammation of the tubercles in the greater number of such cases, but I do not believe it produces the absorption of the tubercles themselves.

At that period, when the cough, expectoration, and hectic fever are greatly subdued by the influence of the tar fumigation, it seems to me often injudicious to continue it longer, or at least in so strong a degree as before. Notwithstanding the great power of this means of cure, I never employed it quite alone, but at the same time prescribed internal remedies, such as the nature and urgency of the symptoms seemed to require; but these have been the same as every practical physician has recourse to in similar cases.”

The kind of tar recommended by Dr. C., is that used for the cordage of ships, and to every pound he added half an ounce of sub-carbonate of potash, in order to destroy the pyroligneous acid.

The simplest and best manner of filling a room with the vapour, is to place the vessel containing the tar over a spirit lamp, taking care that it should boil slowly, and not burn. The vessel should be cleaned every day, and the fumigation repeated every three hours.

The Doctor concludes by expressing a wish that his publication will engage other medical men to pursue his experiments; in the hope of relieving a class of patients, whose sufferings and destiny must affect every practitioner of the least sensibility.

Bennet, in his treatise upon consumption, remarks, that steams and fumigations are accounted amongst the more valuable remedies, and trusted to in the most pressing necessities, but that like all other remedies they should be used with prudence.

Delpit, in the article *Phthisis Laryngea* in the *Dictionnaire des Sciences Medicales*, thus concludes: "S'il est une espèce de phthisie ou les fumigations simples ou composées puissent devenir utiles, c'est sans contredit celle du Larynx, plus accessible à ce genre de remèdes, et par conséquent plus susceptible d'en ressentir l'impression favorable ou funeste. Le phthisique est d'autant plus difficile à traiter, qu'il est devenu susceptible des impressions les plus légères, soit physiques, soit morales; perdant avec la même facilité le repos du corps, et le calme de l'ame, il est dans une anxiété continuelle, il désire des alimens, et ceux ci lui donnent le dévoiement; il veut sortir, et l'exercice le fa-

tigue; il demande des remèdes et il ne peut les avaler, il boit et la toux le suffoque, il appelle la santé de tous ses vœux, et la mort le mine sourdement. En vain le médecin varie chaque jour ses conseils, et ses prescriptions, le terme ou l'objet de l'espérance qu'il donne sans la partager; en vain il laisse entrevoir l'influence de la belle saison, le baume restaurant de la végétation nouvelle, de l'air salubre des champs; en vain il indique un voyage dans un climat plus chaud, ou vante les effets merveilleux d'une eau minérale, et en promet l'infailible succès; le malade est toujours disposé à recevoir toutes les promesses, à se bercer de toutes les illusions, à s'abandonner à tous les projets; mais la belle saison passe ou arrive, la végétation se ranime ou s'éteint, les feuilles tombent ou poussent; la nature fait éclore les fleurs ou prépare la maturité des fruits, elle dépouille les arbres ou renouvelle leur parure; toutes ces révolutions sont également funestes, et ne servent qu'à marquer le moment où le phthisique descend dans la tombe, occupé de projets et nourri d'illusions.

In the same work, article, Inhalation, by Rullier, are the following remarks which are important as referring to one of the modes by which we are enabled to account for the beneficial effect produced by the local application of remedies to diseases of the lungs.

Les vapeurs animales exhalées des chairs et du sang encore chaude des animaux, et mêlées à l'air que nous respirons, ainsi que les émanations des cuisines et des étables, regardées avec

raison comme propres à favoriser le bon état de la nutrition chez les bouchers et les cuisiniers, ou à rétablir l'embonpoint de certains malades; l'humidité de l'air atmosphérique, qui diminue le besoin de la soif, et retarde les funestes effets de la faim prolongée, produisent sans doute une partie de ces effets à l'aide de l'absorption des voies aériennes, devenue alors vraiment congénère de l'absorption cutanée.

L'absorption de la membrane muqueuse des voies aériennes, est justement regardée comme une cause puissante de la communication de celles des maladies contagieuses dont le principe réside dans l'atmosphère. L'histoire des phénomènes de l'asphyxie par la plupart des gaz délétères, tels que l'hydrogène sulfuré, le plomb des fosses d'aisances, ou l'hydrosulfure d'ammoniaque, ne permet pas de douter que ce soit moins à l'énergie stupéfiante dont jouissent ces agens sur le système nerveux, qu'à l'absorption réelle qui s'en fait, qu'il faut réellement attribuer l'influence délétère qu'ils exercent sur l'économie.

In Dr. Beddoes' essay on consumption, are many striking facts of the same nature communicated to him by Dr. Withering and others.

In the article Phthisie, by Maygrier, of the Dictionnaire des Sciences Médicales, we find the following:—

“On connaît l'influence salutaire de l'air que les phthisiques respirent dans l'étable des vaches; de plus, Lepois cite des exemples des personnes guéries de la phthisie, en respirant habituellement l'air balsamique de quelques mines, ou de

quelques ateliers. Les Anglais ont observé que les ouvriers qui travaillent aux mines de charbon de terre ne sont jamais atteints de la phthisie. Galien envoyait les phthisiques de Rome à Naples respirer l'air sulfureux des volcans. Celse usait du même moyen. Nous voyons rarement nos bouchers et leurs épouses mourir de la consommation pulmonaire.

On a un certain nombre d'exemples de malades menacés ou atteints de consommation pulmonaire, qui ont été soulagés notablement ou guéris, en établissant leur demeure dans une étable à vaches. Mascagni a dit que si jamais on découvre un remède efficace contre les maladies de poitrine, ce sera un de ceux qu'on peut appliquer au poulmon à l'aide de l'inspiration."

Speaking of the custom of sending patients to Mount Tabio, near Vesuvius, the Doctor continues: "Galien y envoyait les phthisiques respirer un air charge de vapeurs sulfureuses et humides qui leur etaient fort salutaires.

Beaucoup de medecins ont employé et loué l'action d'un air impregné d'eau et de soufre, mais ils ont averti, avec raison, que les malades devaient respirer un pareil air pendant long temps, s'ils voulaient en retirer tous les bons effets qu'il peut produire sur la maladie du poulmon. Bennet a conseillé d'imiter par l'art, ce moyen de salut qu'offrent aux phthisiques seulement quelques lieux, et il avertit en même temps que pour l'ordinaire, la première fumigation fatigue les malades, mais qu'ils supportent beaucoup plus facilement les suivantes.



Il n'est pas inutile d'ajouter ici cette autre observation de M. Baumes, c'est que dans une fabrique en grand d'acide sulfurique, on n'a jamais vu les ouvriers être atteints de la phthisie du poulmon, et que ceux d'entre eux qui avaient quelque disposition à cette maladie, ou quelques uns des premiers symptomes, s'étaient retablis par leur séjour habituel dans ces ateliers.

For many very valuable remarks, and cases, illustrative of the beneficial and curative effects produced by the use of factitious airs in consumption, the observations on the nature and cure of consumption, &c., by Dr. Beddoes, as well as his letter to Dr. Darwin, and also Dr. Pearson's short account of the nature and properties and medicinal use of different kinds of air, may be referred to very advantageously.

Dr. John T. Thomas in the American Medical Recorder v. 660, an. 1822, gives the particulars of a case of hooping cough, of nearly three weeks standing, which was cured in ten days by the inhalation of nitrous gas. The following mode of obtaining and using it is given by the Doctor: "I confined him, (a boy about 4 years and five months,) in his chamber, with every aperture through which the gas might escape closely stopped. I then placed a tea cup in a sand bath; half an ounce of sulphuric acid was poured into this cup, to which half an ounce of pulverized nitrate of potash was gradually added at such intervals as to occupy the space of one hour each night, by which means the room was kept filled with nitrous vapour, and respired by my patient,

without exciting a paroxysm of coughing; indeed, I particularly noticed, that during the process of decomposition, he was not seized with a single paroxysm, but he generally fell asleep in the early part of it.

In conclusion, Dr. T. remarks, "in the foregoing case, it appears evident to me, and I trust it will to all those who read it, that the *vis medicatrix naturæ* had no agency in relieving the patient. I am willing at all times to pay due homage to that power, but not at the expense of truth and justice; let us, therefore, 'render unto Cæsar that which belongs to Cæsar,' and not ascribe merit where none is due."

Dr. Pearson in the course of his remarks, thus speaks of the effects of the vapour of ether in certain affections of the air passages:—

"Although it does not strictly belong to pneumatic medicine, the writer of the preceding observations cannot let go this opportunity of mentioning, that he has found the vapour of ether remarkably serviceable in phthisical cases. It abates the hectic fever, checks the sweats, removes the dyspnœa, and greatly improves the smell, colour, and other qualities of the expectorated matter. Patients who have inhaled it two or three times, find it so grateful to their feelings, that they are disposed to have recourse to it too often, and cannot readily be prevailed upon to lay it aside when it is no longer necessary. Ether, impregnated with musk, camphor, opium, *asafoetida* and the like may in some cases be preferable to pure ether. Where, as in cer-

tain asthmatic affections, the object is to remove spasmodic constriction of the bronchiæ, and to promote expectoration, the ether may be impregnated with squill, by adding to it either tincture of squill, or squill triturated with a little water of ammonia. The finer particles of the squill applied to the lungs in this manner, along with the vapour of ether, gently stimulate the secreting surfaces of the bronchiæ, and promote the mucous discharge; and if applied in sufficient quantity, to produce sickness, which takes off the spasm, and is otherwise serviceable in such cases. An emetic given in this manner, is very different from an emetic thrown into the stomach in the ordinary way; for, besides having the same general effect upon the system with this last, it has at the same time a peculiar topical operation.

Within the last few years, there has appeared a work, entitled *Consumption Curable*, by F. H. Ramadge, M.D., London, 1834. The main object of the plan proposed by the Doctor is the producing an artificial enlargement of those portions of the lungs which are pervious to the air, which is effected by causing consumptives to breathe through an inhaler or a long tube. As a necessary consequence, the Doctor says, “of this enlargement of the pervious air vessels, the surfaces of the ulcers are brought into apposition, and a cure effected.

From very repeated trials with tubes of various length and diameter of bore, I am thoroughly convinced, that, as regards inhalation, precisely similar effects are produced by the use of the in-

haler I employ; and in reference to expiration, by allowing the air to escape from the lungs through a very small opening of the lips, as long a time may be occupied in emptying the lungs as by the employment of a mouth piece, however small it may be. In addition then, to the effects desired and produced by the plan recommended by Dr. Ramadge, we gain, by the use of the inhaler I employ, the very great and undeniable peculiar effects produced by the local application of various remedies, upon which point there exists now such a mass of positive evidence, as to forbid its being questioned.

To enable those, who may not have seen the work of Dr. Ramadge, to understand his views, many of which are certainly very peculiar, and diametrically opposed to the experience of the majority of the profession, I have made extracts of all the important practical parts.

In the preface, Dr. R. says, "I have proved that there is a cure for what has hitherto been deemed incurable, and this, no drug known but to its compounder, but a simple mechanical process available to all."

In the introduction, he says, "I trust I shall demonstrate in the histories of some of my cases, that recovery has been owing in a great measure, to the supervention of some catarrhal disease occurring spontaneously, through an apparent imprudent exposure to cold, after remedial agents had failed."

"The reader," observes Dr. R., "will perhaps learn with some degree of surprise, that no in-

considerable number of the cases of pulmonary catarrh, and of habitual asthma, are the sequelæ of the disease which forms the subject of this work, more or less perfectly cured. It is indeed strange that medical men have not noticed the non-liability of the asthmatic individual to pulmonary consumption, and that various species of catarrh are the instruments by which nature chiefly arrests that disease.

All, who, from any cause, labour under prostration of strength, or general debility, are prone to fall victims to the insatiable tyrant, consumption, for reasons precisely similar, inability to take inspirations of depth sufficient to keep up the necessary changes produced by the air on the venous circulation. I have said that it is requisite to distinguish betwixt the direct and indirect causes of consumption; not that there are any that can with propriety be termed direct, but in order to impress thoroughly upon the mind, the grand truth, that phthisis is the sequence of debilitated bodily health alone.

When the general health becomes impaired, a total change takes place in the fluids, and secretions of the body; and there is consequently an aberration of nutriment; on this, the formation of tubercles soon follows.

It would be endless to enumerate the various causes of consumption, for, in fact, whatever is capable of impairing the constitution, is liable to produce a phthisical state."

Granting the power of the above causes to develop all the symptoms of consumption in those

in whom the *principia morbi* may have existed in a latent state, it may well be questioned whether, as a general proposition, many will be found to agree with the Doctor; and it may well be asked, whether there is a member of our profession, or indeed, any one of common observation, who has not seen innumerable instances of entire loss of health in every respect, and the utmost debility existing even for years, prior to the extinction of life, without there having been manifested one solitary symptom of any complaint whatever of the lungs, either during life, or as disclosed by a post mortem examination; and what can be said in support of such opinions, when we refer to the facts and observations recorded with such minuteness and accuracy by Louis, Laennec, Andral, and others.

Under the head of Prophylactic Treatment, Dr. R. observes: "The advantages derivable from short excursions, or still better, voyages by sea, always invited my recommendation when circumstances rendered them available. Impregnated as the sea breezes are with saline particles, they act, I conceive, both as stimulants of the lungs to deeper and more frequent inspiration, thus forwarding the enlargement of the chest, a point to which I have more than once adverted in the course of this work as of primary importance."

Another strong recommendation with me to a sea voyage, in the case of persons labouring under incipient consumption, is the probability of the patient's having had his chest expanded in the

manner described above, and thus becoming the subject of a slight permanent catarrh, hence bidding defiance to phthisis.

The following remarks of Dr. Good in reference to the causes of the beneficial effects of sea voyages, appear to me much more consonant to reason; and from much observation in a number of sea voyages in company with those labouring under consumption, I feel perfectly convinced of their correctness.

“After all, says Dr. G., the most equable of temperatures is that of the sea itself; and hence many patients, who feel inconvenience from a residence on the sea-side, are almost instantly relieved by sailing at a few miles distance from it. This has often been resolved into the exercise of sailing, or the sea-sickness which in many instances is hereby excited. It is nevertheless a distinct advantage from either, and resolvable into the explanation just stated, viz: a change to an atmosphere of a more refreshing and invigorating power; to a climate still mild, but less exciting, equable in its thermometer, and tonic in its general influence. The exercise of sailing is useful on another and a very different account. All motion without exertion, or with no more exertion than gives a pleasurable feeling to the system, which the Greeks expressed by the term *Æora*, instead of exhausting, tranquillizes and proves sedative. It retards the pulse, calms the irregularities of the heart, produces sleep, and even costiveness.”

In a palliative or curative point of view, judg-

ing from observations made on others and myself during many sea voyages, and comparing their effects with those produced upon a number of consumptive invalids, by the climates of Madeira, Nice, Pisa, Rome, and Naples, it appears to me, that much greater, and more frequent benefit would result, were physicians accustomed to order patients afflicted with any disease of the pulmonary organs, requiring a change of climate, to take long sea voyages, in preference to resorting to any of those places generally recommended wherein to pass the winter.

In addition to the many reasons advanced by Dr. Good, in support of the remedial efficacy of the sea air and voyages, may be added another, which, although of a negative character, cannot fail to exert a very decided influence in advancing a restoration to health. I allude to the non-exposure to many of the exciting causes of disease, which necessarily tend to increase that existing, thereby preventing the full beneficial effects of any climate, or remedial course. Those who have had opportunities of observing the natural fondness for sight-seeing, carried out to its utmost extent by invalids ordered from home for the benefit of their health, cannot but agree in opinion that very many are materially injured by injudiciously visiting the various places of interest in each of the cities of Italy.

Invalids by properly timing their departure may enjoy all the benefits of a long sea voyage, and an almost perpetual summer's atmosphere for as long a period as may be required, and by



sailing for many places in the southern hemisphere, they will be able upon their arrival to pursue a judicious course of exercise, until the fall months in those latitudes, when it will be proper for them to return home, where they should arrive about the end of May; and if necessary the same voyage may be repeated.

Dr. Ramadge, under the head of treatment of consumption, remarks: "there are but two modes by which we can hope to cure this disease; the one is by rendering it chronic, and the other by artificially enlarging those portions of the lungs which are pervious to the air."

In reference to inhalation as a means of cure, Dr. Ramadge observes, "I am well aware that many objections may be started to this practice from prejudice, or inefficient observation."

Strange to say, the principle on which this mode of treatment operates beneficially, appears to me quite unknown to medical men. It is supposed that the inspiration of medicated vapours has in many instances proved useful by allaying cough, and by producing some healthy and unexplained change in diseased parts of the lungs, as well as on such adventitious surfaces as are formed after the softening or discharge of tuberculous matter. The permanent advantages which inhaling is capable of affording, I am convinced have been very rarely witnessed by the generality of practitioners. First, because the period during which persons are directed to inhale, is generally too short to produce either a catarrhal, or an enlarged state of the lungs, one

of which conditions is absolutely necessary in order to suspend or cure consumption; and secondly, the apparatuses employed for this purpose are not constructed scientifically, so as to facilitate those physical changes which it is desirable the chest should undergo. Proper inhalers ought to be so arranged, as to offer some slight impediment to free expiration, which can be effected by having the vessels for containing the materials to be inhaled, of a size capable of holding about two quarts of liquid, with covers perforated by two apertures, one of very small size serving as an air vent, and the other furnished with a flexible or straight tube of narrow diameter, and at least five feet long. For the end of the tube destined to be received between the lips, we may have mouth pieces formed of ivory or bone, each of them having an aperture of a different size. An extraordinary but most undeserved reputation is bestowed on various substances, mechanically received into the lungs, in a state of vapour. Among these I may mention tar, iodine, chlorine, hemlock, turpentine, and many other articles of a stimulating or sedative nature. I attach little or no importance to any of them. If benefit is derived, it is in almost every instance, in consequence of some such effects as the following: pulmonary expansion, to a degree sufficient to exert an influence in bringing into contact the surfaces of those primary cavities, which are almost invariably formed in the summit of the lungs; pulmonary catarrh, or its common consequence, a vesicular emphy-

sema, in both of which the lungs acquire an unusual magnitude, in the latter more especially. Neither perfect recovery, nor indeed exemption from the danger of relapse into a consumptive state, is found to occur, except in very rare instances, unless the pulmonary organs become naturally, or artificially voluminous, which not unfrequently happens by the supervention of some catarrhal state of the larynx, trachea, or bronchial tubes.

In fact, I never knew a consumptive person who did not lose all his formidable symptoms, and regain health, when an emphysematous, or a semi-asthmatic change had early taken place. I never knew an individual to become consumptive, who was a subject of chronic catarrh, or any species of asthma.

Inhalation performed two or three times daily, for half an hour each time, will, in the space of a few weeks, work a wonderful change on the chest, externally; the muscles concerned in respiration will be manifestly enlarged, and the bony compages of the chest both before and laterally, visibly increased; whilst at the same time, the natural respiratory murmur will be heard internally far more distinct than ever. Though I attach but little value to the substances that are inhaled, still as we find patients more willing to receive into their lungs something having sensible properties, rather than pure atmospheric air, I recommend a handful of hops, a little vinegar, or a table-spoonful of spirits of turpentine to be added to the warm water in the inhaler.

Before I was aware how materially the lungs can be enlarged by simply respiring through a long tube of small diameter, I some years ago was induced to try various means for producing pulmonary catarrh, or some corresponding affection in the great air passage, vulgarly called the windpipe, knowing well what an excellent agent such an affection is for expanding the chest, removing speedily well marked symptoms of consumption, and in a word destroying altogether the tuberculous tendency. For this purpose, as in the heat of summer we rarely meet with cases attended with a catarrhal complaint, one of my expedients was to oblige the patient to breathe twice or thrice a day atmospheric air made cold by artificial means. In more than one case I succeeded in producing a catarrh, which led to the recovery of the consumptive patient.

The Doctor asserts that there can be no other possible method of healing ulcers of the lungs, except by bringing their surface in apposition, since unlike other ulcers, they never granulate.

This manner of accounting for a cure where such a fortunate though extremely rare event occurs, differs not a little from that mentioned by Laennec, for he tells us that the hollows formed by softened and evacuated tubercles, are not incased, or filled up with a new material, but have their surfaces covered with a semi-cartilaginous membrane, which, as they thus heal or cicatrize, leave as many sound fistulæ as there were formerly tubercles.

In reference to climate, Dr. R. says, "so far

from sending a consumptive patient to the south of France, or Italy, I should, if change be requisite, deem the climate of St. Petersburg a thousand times more beneficial. In the latter case he has a chance of contracting catarrh, and of thus staying consumption; in the former any catarrhal state which might exist would speedily be fatally removed.

It may well be questioned whether many will be found to coincide with such an opinion, which certainly is directly opposed to the observations and experience of all those who have directed their attention to this subject, unbiassed by any purely theoretical opinions; and it is much to be regretted that the following correct observations of Dr. Good are not more generally remembered by medical men, when about to recommend a change of climate, after the failure of all known remedies in diseases of the lungs. Dr. G. says, generally speaking, however, a change of climate, or of local situation has been determined upon too late; and hence has not been attended with all the benefit that might otherwise have been reasonably hoped for; on which account many pathologists have considered it as of little importance, if not more injurious than staying at home, though the most celebrated spots be selected. The work of Sir James Clark, upon the sanative influence of climate, &c., may be most advantageously consulted by those desirous of the most accurate information upon the effects produced by different climates upon various diseases.

Dr. Elliotson in the *Medico-Chirurgical Transactions*, vol. xix. page 217, in his lecture upon the Properties of Creosote, says, in reference to its inhalation, that he has made many phthisical patients breathe for four or five minutes, four or five times a day, through a mixture of it with mucilage and water, but with no further effect in general, than occasionally an increased facility of respiration, and a diminution of the cough and expectoration. Some, it always appears to irritate, and all, in whom any degree of inflammation exists. I am satisfied it is no remedy for tubercles. Where, however, only a single ulcer, or but a small number exist in the lungs, and there is no disposition to further tubercular formation, it is very beneficial. In bronchorrhœa, or that state of the bronchial mucous membrane which consists in a profuse secretion without inflammation, I have seen its inhalation of essential service.

In one instance of this affection, in which the expectoration was extremely offensive, the cure was very rapid.

In asthma, also, dependent upon morbid excitability of the bronchial membrane, its inhalation is often useful.

Dr. Mackintosh in his *Practice of Physic*, article, Croup, says that "the inhalation of hot vapour will be found very serviceable in that disease."

He also remarks, that "in chronic uncomplicated cases of bronchitis, service may be expected from the inhalation of tar vapour."

In scarlet fever, when the throat is much affected, Dr. M. says, that "inhaling the vapour of warm water affords more ease than any gargle."

The following valuable remarks upon medical inhalation are from Dr. Eberle's Therapeutics:

"The inhalation of aeriform fluids may be employed to great advantage in the treatment of pulmonic affections. In this way we are enabled to make direct impressions on the respiratory organs, a circumstance which experience has shown to be of much consequence in many of the diseases to which these organs are liable."

In reference to aqueous vapours, Dr. E. remarks, "In catarrhal affections, attended with painful and difficult expectoration, much benefit may generally be obtained from the inhalation of the steam of hot water, or of vinegar and water. This acts as an emollient and soothing application to the tender and inflamed vessels of the internal surface of the bronchial tubes. In pneumonia also, after the violence of the arterial excitement has been reduced by depletory measures, the inhalation of steams of hot water, or decoctions of emollient herbs, will often contribute much to the support of an easy and regular expectoration. In no affections, however, are inhalations of this kind more decidedly beneficial than in the paroxysms of asthma." To moderate the severity of the paroxysms in asthma, says Dr. Thomas, "we cannot employ a more powerful and efficacious means of relief than the inhalation of warm steam frequently from an inhaler. An infusion of chamomile

flowers, with the addition of a little æther, may be used on the occasion." Inhalations of warm water and vinegar, are also often very serviceable in cynanche tonsillaris and trachealis.

"The inhalation of ætherial vapours," says Dr. Eberle, "is a remedy of very considerable value in certain affections of the respiratory organs. In dyspnœa, depending on a spasmodic condition of the pulmonary system, I have frequently derived very great benefit from the inhalation of the vapours of sulphuric æther." Mr. Alibert states, on the authority of an author whose name he does not mention, that the inhalation of sulphuric æther was found quite useful in a case of catarrhal phthisis, complicated with hysteria.

Quite recently, Dr. Bødtker, of Copenhagen, has published some observations on the efficacy of the vapours of camphor in complaints affecting the cavities of the nose, the throat, and the chest.

In the treatment of whooping cough, the inhalation of tar fumes are often highly beneficial.

Mr. Wansbrough, of Fulham, in England, has related some very remarkable instances of the efficacy of this remedy, in this, as well as in several other diseases, attended with difficulty of respiration.

Dr. Eberle states that "in two cases of whooping cough, that had been mismanaged during the early periods of the disease, and in which the expectoration had assumed a purulent appearance, I have derived decided benefit from tar fumigations. This remedy has also been found very useful in asthmatic affections. In acute



inflammatory affections of the lungs, however, it cannot be employed without doing mischief. The inhalation of the tar fumes appears to be particularly beneficial in chronic bronchitis, or in that form of pulmonary consumption which depends on a chronic inflammation of the mucous membrane of the bronchiæ; and Mr. Wansbrough says, that in chronic pulmonary affections, and also subsequent to the existence of increased arterial action, he has no doubt of the superior efficacy of this remedy.

Sir Charles Scudamore in the *Lancet* for 1830 '31, v. 2, page 189, gives an account of several cases of consumption, as well as the exact formula of the iodine mixture, which he had been led to prefer, as a principal remedy in his method of treatment by inhalation.

The following is his formula:

℞ Iodinæ gr. viij.

Potassæ Hydriodat. gr. v.

Alcoholis, ℥ss.

Aquæ destillatæ, ℥vss. m. ft. mist.

“The above,” remarks Dr. S., “is the smallest proportion of hydriodate necessary towards the solution of the prescribed portion of iodine; and, on the other hand, if more were employed, it would engage too much of the iodine, and thus the efficient agent would not exist *free* in sufficient quantity to be remedial. As this delicate agent, iodine, is very volatile, I find it very advantageous to divide the dose for each inhalation, whatever it may be, into two portions, and recommend two-thirds to be used for the first half

of the time, (the whole time being fifteen or twenty minutes;) the other third for the remaining period.

“In commencing with the remedy, I never think it necessary to prescribe less than a drachm as the total quantity for each inhalation, and rarely find it expedient to go beyond six drachms. Almost invariably, I use with each inhalation from twenty to thirty-five minims of the saturated tincture of conium, which has the effect of softening the action of the iodine, without impairing its useful qualities, in addition to its distinct power of allaying irritation.”

The following observations of Dr. S. are so perfectly correct, and consistent with the true principles of our profession, that I should consider it incorrect to omit them:—

“I have the satisfaction of being confirmed by my further experience, on the advantages of the use of inhalation, as an *auxiliary* treatment, in pulmonary consumption, and in several morbid states of the air passages. I say auxiliary, because I do not wish it to be supposed that I confine my treatment to the use of inhalation, although I deem this part of my plan as primary, and most important, and even indispensable. Much professional scepticism appears to be entertained concerning the possibility of affording any material relief in cases of consumption. This I must condemn. It is, I conceive, less adverse to the interests of science than of humanity, to consider any disease as absolutely incurable. Our art is doubtless bounded by

certain limits, but let not these limits be still further circumscribed by our own supineness and prejudices."

The first case related by Dr. S. was that of a lady æt. 56, with ulceration of the mucous membrane of the trachea, for which the usual remedies had in vain been tried. The inhalation of iodine with conium, counter-irritation to the throat, and internal remedies adapted to the varying circumstances of the case effected a cure in six weeks.

The second case, from its great practical value, I copy entire.

"A gentleman, aged 30, of slight figure, and rather narrow chest, had been the subject of consumptive symptoms for two years; improving a little in health in the summer months, but during the rest of the year confining himself to a regulated temperature in contiguous apartments. Even with this care he suffered from an incessant cough, attended with copious expectoration, puriform and often sanious; the respiration was hurried by slight causes. He had pains occasionally in the chest, and always a sense of restraint, night perspirations, considerable emaciation, great debility, the pulse usually beyond 100, the animal heat 100°. The examination by the stethoscope indicated pectoriloquism and gargouillement on the right side. On the left side the voice did not give any marked indications, but the respiration was imperfect, and the sound on percussion not sufficiently clear. His medical attendants had pronounced him to have

tubercles and ulceration, and advised a change of climate as the only chance of prolonging his life.

"I submitted this patient to the combined treatment of inhalation of iodine and conium; of counter-irritation by means of the acetic solution of cantharides; used leeches twice for the relief of pleuritic pain; directed the chest to be washed night and morning with a mixture of a solution of tannin, eau de cologne, and acetic acid; prescribed medicines internally, partly sedative, and partly tonic, every attention being paid to the state of the digestive organs, and the diet also being strictly regulated.

"Four months have now elapsed, and the patient is almost restored to health. Every urgent symptom is removed. He is quite free from cough; the expectoration is reduced from three or four ounces in the twenty-four hours, to two or three drachms. He progressively gains both flesh and strength; and it may be truly stated, that marked amendment took place from the first moment the inhalation was used."

Of his third case I shall merely give the more important part:—

A lady, æt. 52, took cold in June, 1830, and soon became affected with a troublesome cough, and this speedily followed by hectic fever, emaciation and debility. In January, 1831, upon Dr. S.'s first visit she was found as follows, pulse from 120 to 130, cough violent, expectoration to the extent of three or four ounces in 24 hours, partly coloured with blood, and the rest of very

puriform appearance, emaciation excessive, and debility such that she was carried from room to room. The night perspirations so profuse as completely to saturate the bed clothes with moisture, the whole aspect of the patient was that of one fast hurrying to the grave. On examination by stethoscope, there was on the right side pretty well marked pectoriloquism, and strong gurgouillement. On the left side the signs were comparatively favourable, both as to voice and respiration, and the sound elicited by percussion. This lady has most steadily pursued the inhalation of iodine and conium, with the exception of using chlorine and conium for ten days, when I again directed the iodine from a conviction of its superior efficacy. Counter-irritation constantly maintained on some part of the chest, and the chest washed night and morning with the astringent lotion of tannin. Sulphate of quinine, and the *mistura ferri composita*, with an opiate at night when necessary, have been given with much benefit. The diet throughout has been allowed to the full point of nutrition, animal food having been taken twice a day since the change of appetite. Porter of the best quality has been taken daily to the amount of a pint and a half.

The present condition of the patient, (April 27,) is as follows: Pulse soft, regular, firm, and in frequency only from 86 to 96, cough very slight, expectoration not exceeding half an ounce in the 24 hours, perspiration at night very mo-

derate, and not always occurring; the sleep continued through the night almost without interruption, the strength much restored and flesh returning. The convalescence of the patient, however, appears to me now much more assured than at any former period.

Dr. Elliotson, in the same volume of the *Lancet*, says he has used the inhalation of iodine in several cases of consumption, but that in none of them has there been such an improvement as to make him entertain very sanguine hopes of success; still does the Doctor recommend a continuance of such trials, and strongly condemns those who are content with allowing their patients to die under the old established jog-trot routine of means well established as unsuccessful. Although Dr. E. does not speak in high terms of iodine inhalations, he avers to having used those of chlorine with great advantage.

In reference to a case of consumption, where a very small quantity of the saturated tincture of iodine in three quarters of a pint of water could not be inhaled without producing considerable irritation, the Doctor says, "and yet she is able to inhale in the same quantity of water, twenty drops of the saturated solution of the chlorine; and the effect has been such that her cough is nearly gone, and her expectoration reduced in a very great degree. I cannot believe that she will get well, but the amelioration has been such as I never saw before under the use of narcotics, or any other means whatever."

Speaking of another case of consumption in

which chlorine inhalations were used, the Doctor observes that the expectoration still exists to a certain extent, but the mitigation has been such as I never saw before in phthisis from any means whatever.

Dr. Elliotson thus continues, "I think, as medical men, we have all been much to blame for neglecting the inhalation of various substances, though proposed and practised thirty or forty years ago; because we make application to the surface of the body when it is variously diseased, and to the alimentary canal, and by inhalation we can make applications to the air passages themselves when they are diseased."

From a small but exceedingly valuable work by Sir Charles Scudamore, entitled "Cases illustrative of the efficacy of various medicines administered by inhalation in pulmonary consumption, certain morbid states of the trachea, and bronchial tubes, attended with distressing cough, and in asthma," London, 1830, I shall endeavour to extract all the practical information, fully confident that in so doing, I shall only be carrying out the views of the author, in his endeavours to diminish the amount of human suffering, by extending the results of his experience in the treatment of pulmonary diseases, from which he says he has had the satisfaction of proving the great advantage of using various medicines by the mode of inhalation, iodine more especially.

The first case was one of phthisis pulmonalis in the last stage, and the treatment only adopted

with the hope of mitigating the disease. On first using the inhalation (a weak solution of iodine with the addition of some saturated tincture of conium, mixed with water of 120 degrees of heat, to be inhaled for fifteen or twenty minutes, three times a day) he experienced slight giddiness for a few minutes, and some sense of soreness, with dryness in the tongue and throat; but the patient rather mentioned these sensations on being interrogated than complained of them; and they did not continue. He soon found that it afforded him great relief, the power of expectorating being remarkably facilitated; the cough also very much abating; the respiration becoming comfortable; and the chest materially freed from oppression. In all respects he improved in a surprising manner. The patient always expressed in strong and grateful terms how much comfort and benefit he derived from inhalation. Death finally closed the scene, for as remarks Dr. S., "it is in the early stage of the disease that the physician has the opportunity of being most useful; and in which, more particularly, I have enjoyed the inexpressible satisfaction of witnessing the curative agency of inhalation. The second case was one of phthisis pulmonalis in the last stage; as in the former case, the disease evidently incurable, and rendered more inveterate by its complication with tubercles, and ulceration in the intestines. An inhalation of iodine with conium was ordered, in conjunction with other appropriate remedies. The patient's description of the effects of inhaling was, that it



abated the cough remarkably, and rendered the expectoration, which before had been much suppressed, easy and free; from which change ensued a comfortable state of chest, with a great improvement in the breathing."

The Doctor remarks, that if he had been governed by a rigid solicitude for the credit of the method of inhalation, he might, from the utter hopelessness of the case have declined its application. But surely, says he, it is the duty of humanity to adopt the use of those means which we know from experience are the most capable of relieving the symptoms; of mitigating the sufferings of the unfortunate patient; and thus rendering more smooth the path to death.

The third case was one of hæmoptysis, succeeded by ulceration; hectic fever, well marked; from all concurrent symptoms the existence of phthisis pulmonalis established; the curative powers of iodine strongly displayed. A weak solution of iodine was ordered for inhalation; at the end of a few days she found herself improved, and particularly as to the greater facility of expectorating, more ease of chest, and better respiration. The cough, however, still being very irritable, I added conium to the inhalation. The mitigation of the symptoms was now very obvious, and at the end of a fortnight, the amendment was great. From having caught a severe cold, she suffered severely for twenty-four hours from disorder of the bowels and spasms, the cough became more irritable; but otherwise the pulmonary symptoms were not aggravated. I

changed the inhaling mixture for one consisting of conium and prussic acid. This indisposition soon yielded to treatment, and the iodine inhalation with conium was resumed, and with an increased proportion of iodine. At the end of a month her appearance was remarkably improved, and all the symptoms were relieved. The pulse was reduced from 120 to 80, the respiration appeared unembarrassed; the cough was comparatively slight; the sputa small in quantity, and much improved in character; there was no longer hectic fever; and the night sweats were much lessened. She had gained flesh, and some improvement of strength. The inhalation of iodine and conium, such medicines as appeared indicated by the symptoms, and a suitable diet in which a little animal food every other day and a small quantity of old port wine in a tumbler of water at dinner were allowed, were regularly continued; and the Doctor remarks, "three months having elapsed, she had recovered so completely, that no further treatment appeared to be necessary. The lady removed to a distant part of the country, but I have the satisfaction of hearing that she continues perfectly well. The fourth case, bronchitis, attended with high irritation. The existence of tubercles questionable. The utility of inhalation sufficiently well shown, as materially assisting the removal of the symptoms. A married woman at forty, of delicate appearance, contracted chest, laboured under a severe cough, which had been existing, more or less for two years, but lately much aggravated,

and accompanied with great wasting of flesh, loss of sleep, night sweats, and reduction of general strength. Four months before she had been delivered of a child, and the catamenia had not returned; the pulse 140, and animal heat  $102^{\circ}$ ; expectoration difficult, and sputa mucopuriform, but not copious. The digestive organs were not in a healthy state, and irritation prevailed over the whole system. Leeches to breast, a blister between the shoulders, acetate of morphia at night, a mixture in the day of sulphate of magnesia, infusion of roses, and one minim doses of hydrocyanic acid, and an inhaling mixture of conium, hydrocyanic acid, and an alcoholic tincture of ipecacuanha speedily relieved the urgent symptoms, and at the end of a few days, the inhalation of iodine with conium was directed. She used the inhalation for twenty minutes three times a day, and at the end of a week the proportion of iodine was increased, and the conium omitted, on account of the diminution of all the symptoms, which no longer required the assistance of the narcotic ingredient. The use of the sedatives was also discontinued, and a saline cascarilla draught ordered twice a day. In another fortnight the patient was satisfactorily convalescent, pulse ranging from 70 to 76, and the animal heat reduced to  $95^{\circ}$ , respiration natural, cough so slight as to be scarcely troublesome, and a return of the catamenia. The inhalation was continued twice a day for another week, and once a day for a short time. All internal medicine discontinued, and the woman's

health in the course of a few weeks became well established."

The Doctor observes, "there was not sufficient reason in this case to suspect ulceration, although I think the existence of tubercles highly probable. The signs of congestion in the right lung were manifest, and the mucous membrane of the bronchiæ of each lung was in a state of morbid irritation. I was much satisfied with the sedative influence of the first inhaling mixture, and still more with the curative power of the iodine. The degree of animal heat was remarkably high, and together with the rapid pulse, was indicative of much pulmonary irritation, rather than active inflammation, and the subsidence of the symptoms chiefly from the employment of sedative treatment confirms this view. The patient looks well, and expresses herself to be quite comfortable in her feelings at the present time, six months having elapsed since her illness just described."

Case fifth, chronic cough, apparently depending on tuberculous irritation, cured by the inhalation of iodine and hemlock. "A gentleman aged twenty-five, first suffered from cough five years ago, from which he had never since been free, although it always became alleviated in the summer months. The pulse was 96, animal heat  $98^{\circ}$ , the cough was exceedingly irritable, hard, and sonorous, unattended with secretion, and the digestive organs not in a healthy state. In conjunction with other treatment, an inhalation with a weak solution of iodine, was ordered.

Such was the extraordinary irritability of the cough, attended with a harassing tickling in the trachea, that I found it expedient to add some conium to the iodine; and this had the effect of softening the inhalation remarkably, to use the language of the patient, and of rendering its operation very soothing. The cough became surprisingly relieved in the course of a week, the pulse reduced to 84. He could now use a larger proportion of the iodine, still however combined with conium, and praised the effects of the inhalation in the strongest terms. At the end of two months he expressed himself as enjoying the feelings of health, felt better than he had been for years; he could take active exercise without any embarrassment in his breathing; he had, in the last fortnight, lessened the frequency of inhalation to twice and once a day, and without the hemlock. He now discontinued all treatment, and set out on a tour, and I have the satisfaction of hearing from him that he continues perfectly well."

Sir Charles observes, "when all the circumstances of this case are considered, those revealed by means of auscultation and percussion, those which appear from the patient's own history, and the symptoms themselves, it seems reasonable to believe that tubercles existed. Certainly, from no means that had ever before been tried did any benefit arise comparable with that produced by the inhalation. It will perhaps be objected to my praise of the inhaling treatment, that, as internal remedies were administered, the benefit

might with as much propriety be ascribed to their operation as to the inhalation. In answer, I must observe, that an immediate and decided relief to the cough was given by the inhalation, such as could not be ascribed to any other cause; that various medicines, which had been tried, had proved ineffectual; and that, in similar cases, I have wholly failed to produce the same benefit by internal medicines alone.

“Disease of the lungs, is, for the most part, more or less complicated with some error of other organs; and it would be contrary to good sense to pursue an exclusive local treatment, very highly and, I may even venture to say, essentially important as I consider that local treatment to be.”

Case sixth, one of phthisis pulmonalis; tubercles in each lung; great probability of an ulcer at the apex of the right lung; hectic fever present; the iodine inhalation highly beneficial; the tubercular irritation removed, and the patient restored to health. “A gentleman aged forty-nine, short and slight, and evidently of weak constitution, subject to winter cough, was seized with hæmoptysis some months before the attack of illness which I am about to describe; I was consulted in June, and found him affected with very irritable cough, short breathing, a painful state of the chest, with oppression, very disturbed sleep, and night perspirations.

“The expectoration was copious, consistent, of greenish appearance, of faint, disagreeable odour, and it afforded a coloured ring when examined

as before described. In addition to other treatment, he entered immediately on the use of the iodine inhalation combined with conium. He was sensible of a very soothing influence from the inhalation; it caused an easy expectoration, relieved the cough most satisfactorily, and rendered the breathing at once comfortable. In two days the sputa became of creamy-white colour, and still of a faint odour. The tongue was coated with whitish flakes, and the gums were spongy, as if from mercury, but without ptyalism. This state of the tongue and gums was in part produced by the inhalation, an effect, particularly as regards the tongue, which I have occasionally witnessed. At the end of three weeks, the amendment was still more confirmed; the respiration was quite comfortable, the cough very slight, the sputa small in quantity, and consisting chiefly of frothy mucus; the nights were passed with good sleep, and freedom from perspiration; the tongue was almost clean, and the gums nearly restored to their natural state, although the inhalation had been regularly continued three times a day. I never witnessed in so short a time such a happy change in the looks as this gentleman displayed. He spoke in the highest terms of praise of the inhalation; and, as this gentleman was very intelligent, and minute in his observations, I attached the more importance to his report. He stated, that it invariably gave ease and comfort to his chest, quickly improving the breathing, and relieving the cough. The patient continued to improve progressively

in the most favourable manner. At the end of two months, he discontinued the inhalation, and at this period he was free from all symptoms of illness, quite relieved from cough, with recovered flesh and strength. At the present time (October) his breathing is so greatly improved, that he can walk six or seven miles a day without inconvenience."

The Doctor observes, "I advert to this case with infinite satisfaction, as proving the great benefit of iodine inhalation. I had the fullest persuasion of the existence of tubercles, and could scarcely doubt the presence of some ulceration. The patient had made previous trials of medicines for the cough, without any apparent good effect. The bad symptoms were in active progress when I commenced my treatment."

The acknowledged difficulty of forming a correct discrimination between pus and mucus, induces me to copy the following description of a plan recommended by the late Dr. Young in his treatise on consumption, which Sir Charles has frequently tried and places the greatest confidence in its results.

He says, "having bestowed much consideration on the subject, I am led to give the preference to the optical experiment to which I have alluded. I employ two circular pieces of well selected plate glass, interposing a small portion of the matter to be examined between them, and hold the glasses, placed closely and evenly together before a wax taper, for the clearer the light, the more distinct is the effect produced.



If the sputa contain pus, circles of coloured light will appear, which, when well marked, are red and green alternately; but if it be altogether a mucous secretion, no such colours are produced. Pure pus the most strikingly displays this resemblance of a small rainbow, (the explanation of which is, that pus containing globules, causes a refraction and reflection of the rays of light; while mucus is free from globules,) and the colours of the ring are well marked according to the proportion of the true pus in the mass of matter. So far then we have a simple and ready mode of judging of the nature of the expectoration in pulmonary disease."

Case seventh is a very interesting one of "Empyema, with tubercles in the lungs," in which the iodine inhalations produced remarkably beneficial effects, and the patient was advancing rapidly to recovery, when he indiscreetly exposed himself to wet and cold, and brought on a renewal and aggravation of the disease which art could not oppose; a strong lesson to the consumptive patient, upon whom it is ever incumbent to avoid, to the utmost of his power, all remote causes of injury, and especially a careless exposure to the vicissitudes of the atmosphere.

Case eighth, "Ulcer of the Larynx, with tubercles at the apex of the lung" is equally instructive with the last, in proving the very great efficacy of iodine and conium inhalations, but the prosperous course of improvement was suddenly interrupted by an exposure to damp and cold, in a change of apartments, which was fol-

lowed by a new and violent accession of symptoms, and in a few weeks death closed the scene.

The Doctor observes that, "the improvement was so decided as, I conceive, to justify the remark, that had this poor patient enjoyed all the advantages and comforts which his delicate condition required, he might have regained a tolerable state of health; and had the treatment been used at a much earlier period, permanent success might perhaps have been obtained."

Case ninth, asthma, bronchitis, promptly and very remarkably relieved by inhalation of iodine with conium.

A gentleman, aged sixty-four, for many years constantly more or less affected with humoral asthma, was seized with severe symptoms of acute bronchitis, which was mitigated by the usual treatment, but passed into the chronic form. Cough frequent, and distressingly violent, expectoration profuse, usually amounting to about a pint in the twenty-four hours; it was in part frothy, but in the largest proportion it was heavy, tenacious, highly offensive in smell, and occasionally mixed with blood. The breathing was sometimes alarmingly embarrassed after the fits of cough, and exceedingly oppressed also whenever the foul secretion was much collected in the bronchial tubes. The patient was much reduced in flesh and strength, with some hectic fever every day. He had taken various expectorants latterly with but slight relief; he had removed to a favourable situation for change of air, and received all the advantages of regulated diet and

regimen, but the bronchial symptoms continued almost as urgent as before, when I put him on the plan of inhalation, using the iodine mixture with conium. The good effects which were quickly produced exceeded my most sanguine expectation. Even in the short space of two days, great relief was experienced; and, at the end of ten days, the expectoration was lessened to about an ounce in the twenty-four hours, was simply mucous, and no longer offensive in odour.

He described that he felt his whole chest comforted by the inhalation; that he could without difficulty disengage the expectoration, which before had required for its expulsion such paroxysms of cough as were frightful and overwhelming.

The patient recovered his health to a point of improvement beyond what was usual for him to enjoy, but a perfect restoration was not to be expected in a case where such complicated disease of the lungs had long existed.

The Doctor observes, "the powers of the iodine inhalation in correcting the morbid condition of the mucous membrane of the bronchiæ were here most happily manifested. The patient had of his own accord, made trial of the iodine mixture without the conium; but he found that, used alone, it produced an inconvenient degree of irritation, and excited too much cough."

Case tenth. Chronic Bronchitis. The cough extremely urgent, the secretion from the mucous membrane remarkably viscid. The iodine inhalation curative within a short period of time.

J. C., aged fifty-four, tall and robust, and in good health till two months before the present illness, was attacked in March with bronchitis, the acute symptoms of which were not of long continuance. When he consulted me, he was labouring under severe cough, sometimes of half an hour duration, and especially troublesome at night. He had great difficulty in lying down, and was disturbed every hour or two by the accumulation of sputa, which were so glutinous and ropy as with great difficulty to be discharged even by the most continued coughing. He suffered much from night perspirations; appetite deficient, but the digestion for the most part regularly performed.

I did not think it necessary to prescribe any internal medicine, and limited the treatment to the use of the inhalation of iodine with conium; but I recommended that he should omit this narcotic ingredient, except when the cough was particularly troublesome; for I conceived that the use of the iodine alone was more favourable to the discharge of the glutinous sputa, and so the result proved. He quickly improved in the most satisfactory manner. He expressed that the inhalation created an immediate facility of expectorating, the effects of which were quite delightful to his feelings; "that the phlegm seemed to come from the bottom of his lungs, and that, when this was cleared away, his chest was light and easy." His cure was completed in about three weeks.

Dr. Scudamore observes, "I considered that

in this case the influence of the inhalation upon the constitution, as well as upon the parts with which it came into immediate communication, was very well shown. The patient soon found his appetite increased, a perfect regularity of the bowels produced, and an improvement of the spirits and of the nervous system in general."

Case eleventh. Habitual Asthma. The difficulty of breathing attended with distressing cough, readily induced by cold, damp, and especially by foggy states of the atmosphere. The symptoms satisfactorily relieved by inhalation.

A gentleman, aged twenty-seven, slight in figure, and pigeon breasted, had been asthmatic from infancy; and two years before consulting me, experienced a dangerous inflammation of the lungs, which had left him almost constantly suffering more or less from irritable cough, and especially in the winter season.

When I first saw the patient, he was evidently labouring under bronchitis. The symptoms were very urgent, but wholly of a chronic character. Cough extremely irritable, bronchial secretion copious, viscid, of disagreeable odour, and of greenish colour. The respiration, always embarrassed, was now much hurried, 32 in the minute, and distressingly on going up stairs. He complained of a sense of stricture and oppression of the chest, some sense of tightness in the trachea, had considerable difficulty in lying down in bed; and, when he arose in the morning, the struggle to free the air passages from the secretion which had been collected during the night,

was often so severe as to weaken and render him languid for the whole day.

Conjoined with other remedies for his general health, the Doctor prescribed the inhalation of iodine alone or conjoined with conium, directing him to add the latter ingredient only when the cough was irritable; and further, that when the asthmatic embarrassment was troublesome, he should add some saturated tincture of stramonium. The result of this treatment was perfectly satisfactory. He made the following report of the effects of the inhalation: "he used it regularly on first rising in the morning, sometimes before quitting his bed, and immediately obtained a facility of expectorating, which superseded the necessity of the usual cough, and prevented its taking place in any troublesome degree. The breathing was rendered easy, and the chest light and comfortable; a happy exchange, he said, for the feelings of oppression and restraint which formerly always affected the wind pipe and the chest more or less severely. He repeated the inhalation in the middle of the day; for the most part he employed the iodine mixture separately, as he conceived that it acted more strongly as an expectorant when thus used, although occasionally he found the advantage of adding the other ingredients.

"It could not be expected," observes Dr. S., "that so confirmed an asthmatic patient should acquire the possession of perfect health, but it is satisfactory to report that the state of his chest was rendered, for the most part, very comfort-

able. He obtained every morning, by means of the inhalation, an effectual clearance of the bronchial tubes; by the use of the shower bath, the ablution, friction, and dumb bells, he gained a very marked increase of strength in the muscles of the chest, and in the body altogether, and his general health became equally amended."

Case twelfth. Chronic Laryngitis. The symptoms immediately relieved by an inhaling mixture of conium and hydrocyanic acid; and the affected parts further restored by the inhalation of iodine.

A lady aged thirty-six, was subject to chronic inflammation of the larynx, the symptoms of which were a sense of burning heat in the part, a viscid mucous secretion difficult to be excreted, impediment in swallowing the saliva, occasionally an irritable cough, and an uneasy and at times painful respiration. I prescribed for inhalation a mixture of conium and hydrocyanic acid. The effects were quite satisfactory. All the symptoms were immediately relieved; and, at the end of a week, I directed this lady to use the iodine inhalation twice a day, with a view to produce a more permanently healthy state of the mucous membrane of the air passage. I was not disappointed in my expectations. She related that from the first inhaling mixture she experienced a soothing warmth in the windpipe and over the chest, with an equal relief of the breathing and the cough; and finally from the use of the iodine, a gradual recovery of the natural powers of the voice and the respiration.

Case thirteenth. Common irritable cough; speedily cured by the inhalation of conium.

A lady, for the most part enjoying good general health, had long suffered inconvenience from an irritable state of the trachea; so that from the slightest exposure to cold, she became affected with a spasmodic kind of cough, unattended with secretion. In this case I found the use of an inhalation of conium prove sufficient for the complete relief of the cough; and my patient humorously said, "that she never would travel without her excellent friend the pipe."

I subsequently recommended other means for the purpose of giving tone to the affected parts; but this simple treatment proved quite sufficient for the removal of the cough; and not finding the smallest inconvenience from the inhalation, this lady extolled its influence as far more agreeable and satisfactory than that of internal medicines, of which she had on previous occasions made a free use.

Case fourteenth. Chronic Bronchitis. The cough extremely urgent, and the bronchial secretion unusually viscid and tenacious. The cure effected by inhalations and counter irritation.

A female, aged fifty-four, tall and slight, of delicate constitution, having rather a contracted chest, subject to winter cough for the last twenty years, with asthmatic breathing, consulted me in the latter part of autumn, for a cough of unusual severity, from which she had suffered three weeks. It was a strong sonorous cough, and so irritable, that she could scarcely carry on any



conversation. The quantity of expectoration was upwards of half a pint in the twenty-four hours, partly frothy, but, in great part, also extremely viscid and ropy, and of a disagreeable faint odour. When this was much accumulated, the fits of coughing were of such violence as to threaten suffocation. The digestive functions in a natural state, and the constitution not affected except with nervous irritability, in consequence of loss of sleep at night from the urgency of the cough, which scarcely intermitted throughout the twenty-four hours.

I prescribed a mixture for inhalation composed of tincture of conium, hydrocyanic acid, and tincture of ipecacuanha; the application of the acetic acid with cantharides\* to the upper part of the chest, and no other internal medicine than a little magnesia, as occasion should require. The good effects of the inhalation were immediately apparent, and in two days the cough was so much abated, that I directed the iodine inhalation; but prematurely, as was shown by an immediate and continued aggravation of the cough. She resumed, therefore, the first mix-

\* I have used, says Dr. S., with advantage as a convenient counter-irritant, a saturated infusion of cantharides in strong acetic acid. It is a very manageable remedy; and in many ways highly convenient; if applied diluted, it will act as a rubefacient, if in its state of concentration, it will vesicate in a short time; it may be applied by means of a camel's-hair brush to the smallest extent of surface, and in any situation, and it is a less formidable treatment in appearance than the ordinary blister."

ture, and with the former success. She had attentively used the inhalation three times a day for a week; at which period the cough was comparatively slight and unfrequent; the sputa were much reduced in quantity, and amended in quality, but still there was much of the peculiar viscid secretion before described. I now directed that the iodine inhalation should again be tried, but with the addition of conium. It agreed perfectly, and proved soothing instead of irritating, and she was much struck by the facility which it gave her of expectorating, still more decided than from the use of the other mixture.

The secretion from the bronchial mucous membrane was gradually corrected, and brought to the natural state of health. In three weeks this patient recovered entirely, and for the last few days had used the inhalation only once or twice in the day.

Sir Charles Scudamore in reference to this very valuable case observes: "As far as relates to the treatment of bronchitis not attended with decided inflammation, I should be almost contented to rest my conviction of the efficacy of inhalation on this case, so unequivocal was the benefit speedily obtained. The patient herself contrasted it with the slow and imperfect advantages which she had derived from internal medicines, administered for a long period in the preceding winter, when the bronchial attack, according to her own account, was less severe than the one now described.

Case fifteenth. Bronchitis, unattended with

fever. The cough was very urgent, and remarkably relieved in a short time by an inhaling mixture of conium, hydrocyanic acid, and ipecacuanha.

A female, aged forty, of robust form, the mother of several children, for years past affected with severe cough in the winter season, had been ill for a fortnight, when she consulted me. Cough very hard, and so violent and incessant as to disable her from occupation in the day, and disturb her rest at night; breathing short, and felt almost a constant tickling in the larynx, the sputa copious, and she expectorated with much difficulty; considerable perspirations at night. The digestive functions were not much disturbed, and I ventured to submit this case to the sole influence of the treatment by inhalations.

I prescribed, therefore, as in the last case, a mixture of conium, hydrocyanic acid, and ipecacuanha, which she inhaled three times a day. The effects were quite satisfactory. At the end of five days, the cough was so much mitigated, that she declared herself to be almost cured; and that in this short space of time, she had received more benefit from inhalation than from internal medicines formerly, taken for a considerable time.

The Doctor observes, "although I wish, in the general character which I offer of the treatment by inhalation, to speak of it as a valuable auxiliary rather than as being in itself sufficient, yet I shall express the truth only when I affirm that I have in many other instances, as well as

in these just related, been able to effect the cure of bronchitis, and catarrhal cough, by pursuing the same method, without prescribing any internal medicine.

Case sixteenth. Spasmodic Asthma. Very satisfactory relief obtained from the inhalation of æther, conium, and ipecacuanha.

A married lady, aged thirty-six, had been subject to attacks of spasmodic asthma for some years past, from which she obtained relief by the use of antispasmodic and expectorant medicines, but her stomach was often disordered by their influence, and she had recourse to them with reluctance. I was desirous of trying the comparative power of inhalation, and prescribed for this purpose, a mixture consisting of æther, conium, and ipecacuanha. I subjoin a statement of its effects in the words of the intelligent patient. "I inhaled the medicated vapour during fifteen minutes before going to rest. The first sensations it occasioned me, were slight fatigue in breathing, and an aching pain in the breast, which, however, subsided by degrees; and when expectoration took place, which occurred copiously within half an hour after the inhalation, I felt completely relieved. Afterwards, in the course of the night, whenever I awoke, (instead of feeling the oppression, and the difficulty of breathing which often distressed me) expectoration, without effort, took place; and, breathing easily and freely, I then slept again immediately. Usually, whenever I awake with the sensation of tightness across the chest, I do not sleep for

an hour or two afterwards. During two days after the inhalation, slight expectoration continued; and ever since (now ten days) my breathing, both night and day, has been perfectly free."

The experience and well known character of Sir Charles Scudamore entitle his remarks upon medical inhalation to the most serious consideration, and from his general observations and conclusions, appended to the previous cases, I shall extract all that particularly appertains to the subject.

It has often happened that valuable remedies have been laid aside or neglected, in consequence of some mismanagement in their use, or, perhaps, from an excessive zeal in the recommendation of them by their authors, so that, not being found capable of producing the promised effects, they have experienced the unmerited fate of being rejected as useless.

Some of the medicines which I have recommended for inhalation are agents of much delicacy and power. My conviction of their most perfect safety, employed in this manner, has not been shaken by a single untoward instance; but it is right to state, that their administration requires careful attention and management. The composition of an inhaling mixture, and the doses to be used, are to be adapted to the particular case, and changed according to its varying circumstances, in the same manner as we find it necessary and proper to alter and accommodate our treatment with internal medicines.

As by mixing the tincture of iodine with water,

the iodine itself separates into flakes, which become precipitated, and as this medicine is very sparingly soluble in water alone, I found it expedient to form a preparation which should be uniform, and preserve its transparency when united with water. This advantage is effected by adding together iodine, hydriodate of potash, distilled water, and alcohol. The proportions of the ingredients are to be varied according to the circumstances of the case. The tincture of conium and stramonium is a saturated one prepared from the dried leaves. The chlorine solution is the saturated solution of pure chlorine gas in distilled water. The æther is the pure sulphuric æther, and the tincture of ipecacuanha is a spirituous one of the roots.

Of all these agents, the iodine is the most active, and that in which I place my confidence as the curative remedy in phthisis pulmonalis. The average frequency for inhalation is three times a day. The inspiration should be as strong as can be conveniently made, in order that the vapour may freely enter into the lungs; but the patient should inhale in a manner not to fatigue the chest, and this evil will be avoided if he allow himself sufficient interval between the periods of inhaling to recover power.

I lay it down as a principle, that inhalation should always be so conducted as not to produce fatigue to the patient in any way, either as regards the composition of the mixture, its strength, or the period of carrying on the process.

In first entering on the treatment of inhaling,

the irritation of coughing is usually produced, and in some cases this happens on every subsequent occasion; but unless this prove excessive or permanent, it does not form an objection to the treatment, for the power of expectorating is remarkably facilitated, and the bronchial tubes being cleared, a material subsequent relief to the cough is afforded. But a curative and not merely a palliative effect is the object to be held in view.

The proportion of alcohol contained in the different materials is too small to produce any inconvenient stimulation, it is necessary as the menstruum, and it is useful also as causing the volatile parts of the medicine to rise more freely with the watery vapour.

The administration of the iodine inhalation is improper when any decided inflammatory action is present. It happens, occasionally, in phthisis pulmonalis, that blood is coughed up, either pure or mixed with the sputa. In the first case, it is most probably the consequence of a rupture of a vessel, caused by the force of coughing, when there is an increased capillary circulation; and such appearance should induce us either to suspend the inhaling process altogether, or to use only sedative ingredients, till the expectoration cease to be coloured. But, when the blood is of a very dark colour, instead of being of a bright scarlet, and more especially when it forms only a proportion of the sputa, we may conclude that it is the consequence of that slow ulceration by which small vessels are eroded; and in such circumstances, I have not been deterred from using

the iodine, but have always blended with it the conium. The disappearance of colour in the expectoration will confirm the propriety of the treatment.

The admixture of iodine, and also of chlorine, with hydrocyanic acid is incompatible, as is also that of iodine with chlorine.

The tincture of conium is usually very soothing in its effects, and may be mixed with any of the other materials.

Tincture of opium may sometimes be used advantageously, either alone or as entering into the composition of the inhaling mixture. I have occasionally added it to the iodine solution, but, for the most part, I give the preference to the conium.

The tincture of digitalis produces sedative effects, and more especially when united with hydrocyanic acid. In one case in which spasmodic irritation, united with slight symptoms of inflammatory action, prevailed to a great degree, I obtained the best effects from this mixture.

The tincture of stramonium exerts an antispasmodic power in asthma.

The tincture of ipecacuanha is expectorant.

The internal use of hydrocyanic acid is by some practitioners contemplated with great apprehension. I do not prescribe it except in very small doses, and which are perfectly safe; but I can confidently state that no inconvenience attends its employment as an ingredient for inhalation, while it often proves highly serviceable as a sedative and antispasmodic.



Æther is found to be very useful in a spasmodic condition of the air passages, and contributes to facilitate expectoration. It may be joined with any of the other ingredients, or used separately.

In cold weather especially, it will be necessary to keep the inhaler containing the mixture (of any kind) immersed in hot water during the process, in order that the proper temperature be kept up.

Of the chlorine solution, I have to observe, that, as a remedy employed in the same manner, and with the same views as iodine, it has not afforded me results approaching in value to those obtained from the latter medicine. In several cases of phthisis pulmonalis, I substituted the chlorine for the iodine, but did not continue its use for more than a few days, as its beneficial action was, in my opinion, very decidedly inferior; and, on every occasion, the patient, when resuming the inhalation of iodine, in strong language expressed his conviction of its being by far the most serviceable remedy.

Chlorine, from its great volatility, comes over so quickly with the aqueous vapour, that the total quantity used at each inhalation should be partitioned into doses, if the process be continued beyond four or five minutes; otherwise its action will at first be too strong, and at last too weak. For the temperature of the water, I prefer  $110^{\circ}$ ; and for each of the subdivided doses from ten to twenty minims. I have usually found that the patient prefers the plan of protracted inhalation

three times a day, to the greater frequency for a shorter time, although I consider this for the most part optional.

Those desirous of more information upon inhalation of chlorine, as a remedy in tubercular phthisis, may with advantage consult the *Memoirs of M. Gannal*, recently translated by Mr. Potter. I shall be happy to learn that the highly favourable report of M. Gannal becomes supported by the testimony of others, for it is most desirable to increase the list of really useful remedies in a disease so melancholy as phthisis pulmonalis.

In this disease, even in desperate circumstances, I recommend the use of inhalations, as being calculated, more than any other treatment, to mitigate the most troublesome symptoms, and afford the patient great comfort and relief. Also, I am persuaded, that such treatment affords the strongest chance of cure.

Before the disease has made much destructive progress, and especially in the very early stage of phthisis, I have the highest opinion of the efficacy of the treatment. But I desire to repeat what I have before said, that internal treatment and general management should be joined with the plan of inhalations. I have occasionally, as shown in some of the cases which I have related, found the pulmonary or bronchial disease in so great a degree local, that I have chiefly or wholly trusted to the use of inhalations, and with success; but these are exceptions to the general rule.

The Doctor here concludes with "the hope that I have performed some service to medical

science and to humanity, in proposing a treatment novel in many essential points, always perfectly safe, and never failing to render more or less of benefit, when the case is appropriate for its employment. I may finally state, that it is remarkably successful in chronic bronchitis; gives relief to the asthmatic patient; proves often curable in cases of phthisis pulmonalis not become desperate in their nature; and is capable of much useful influence even in those extreme examples of the disease which too probably admit only of alleviation, and seem to bid defiance to the ordinary rules of practice."

In the London Medical Gazette for February, 1840, the author just quoted has given to the profession additional observations upon medical inhalation in tubercular phthisis pulmonalis, and from their perusal, it will be seen that the practical results derived from an experience of ten years fully authorize his speaking with increased confidence of the efficacy of the inhalation of iodine and conium, as an important auxiliary in the treatment of consumption. The formula at present preferred by this indefatigable observer differs slightly from that previously given, and is as follows:—

R Iodini pur.

Iodid. Potassii āā gr. vj.

Aquæ destillatæ ℥v. 3vj.

Alcoholis, ℥ij m. ft. mistura.

The tincture of conium is always to be added at the time of mixing the iodine solution with

the water, and it should be a saturated tincture prepared with the most genuine dried leaves.

From half a drachm to a drachm of the iodine mixture, and half a drachm of the soothing tincture (though this last may be increased if the cough be very troublesome) the Doctor considers sufficient when commencing its use, for an inhaling of eight or ten minutes, to be repeated two or three times a day.

In the course of a few days, the Doctor recommends the quantity of the iodine mixture to be augmented, progressively from  $\mathfrak{z}\text{j.}$  to  $\mathfrak{z}\text{iv.}$ ; but also, then prolonging the time for inhaling; he divides the iodine dose, putting two-thirds at first, and the rest after the expiration of seven or eight minutes.

During the process of inhaling, Sir Charles orders the inhaler to be kept in a jug containing water of rather higher temperature than  $120^{\circ}$ .

It is of the utmost importance, observes Sir Charles, that the strength of the inhaling mixture should be considered in relation to the particular case; the feelings of the patient will be a great guidance.

Sir Charles asserts that the proper use of this remedy in an ordinary inhaler does not occasion any of the inconvenience alleged by some to have resulted from it.

In the Dublin Medical Journal for March, 1839, there are some very important observations on the exhibition of various remedies in the form of vapour in Pulmonary Diseases, with

a description of an apparatus admirably adapted, in many cases, for their valuable local administration by inhalation, by Dr. D. J. Corrigan.

Of the powerful influence, says Dr. C., which various vapours, and even changes in the air itself, as to heat, moisture, constitution of the atmosphere, &c. exercise as local agents on the lungs, there cannot be a doubt.

Every day's observation shows it, every one in his own person feels it. Even allowing most fully for the exaggerated encomiums of some of the older advocates of inhalation, enough remains in the attestations of such men as Darwin, Beddoes, Withering, and their contemporaries, to forbid us to abandon this plan of treatment. Dr. C. refers to the following authorities as having used the inhalation of medicinal substances in various diseases of the lungs with decided advantage, Laennec, Gannal, Greenfield, Toulmouche, Berton, and Sir James Murray.

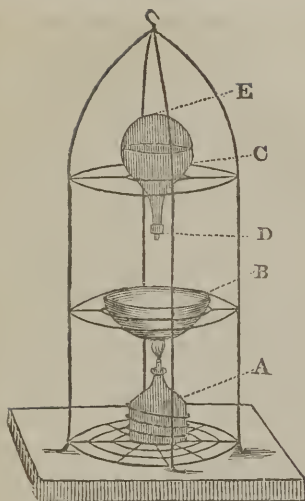
I think, observes Dr. C., these few observations justify me in coming to the conclusion, that remedies in the form of vapour exert a powerful influence over diseased action; and that, as it is only in this form we can ever administer remedies to act locally upon diseased tissues in the lungs, the exhibition of remedies in this form merits close attention and further perseverance.

The following design gives a most correct idea of the apparatus proposed by Dr. Corrigan, to enable the diffusion of whatever medicine may be selected for inhalation, to be carried on for as long a time as may be considered appropriate.

There can be no doubt that in very many cases of consumption this simple apparatus will prove very valuable as an additional means of carrying on medical inhalation, and must be regarded as of great importance to those who are anxious to test the value of the local application of remedies in that disease, and I consider Dr. Corrigan to have conferred a real benefit upon the profession, by the construction of an apparatus at once simple and of easy application.

Granting to the diffuser of Dr. Corrigan all the merit it really deserves, I cannot forbear remarking that there are many other diseases of some portion of the respiratory organs besides consumption, for the treatment of which medical inhalation is most decidedly efficacious, and in the greater number of which, the ordinary inhaler possesses unquestionable advantages over the apparatus of Dr. C.

I cannot agree with Dr. Corrigan in his remarks upon the difficulty or inconvenience experienced in the use of an ordinary inhaler, as such in reality do not exist; for, independently of the long experience of Sir Charles Scudamore, my own, which has been by no means limited, authorizes my asserting most decidedly, that in no one case has the patient complained of the slightest difficulty or inconvenience in using the inhaler; and upon this point I have always been most particular in making enquiries; and as regards the real efficacy to be derived from medical inhalation by an ordinary inhaler, I consider it now beyond dispute.



There is a light open iron wire frame about eighteen inches in height; at the bottom is a spirit lamp, A. At the proper height above it is an evaporating porcelain dish, about six inches diameter, B. Above this is a glass globe, C, with its neck downwards. In the neck of the globe is a cork, D, bored, and through the opening is drawn, moderately tight, a short plug of cotton wick, such as is used in a spirit lamp; in the glass globe at E, opposite the neck is drilled a pin hole, to allow air to pass in, according as the fluid within drops out through the neck.

To use it, the porcelain dish is filled with hot

water, the spirit lamp is lighted, and as soon as the water in the dish has begun to boil, the glass globe containing the tincture of iodine (if this be the substance used) is placed as shown in the sketch. The rate at which the fluid in the globe shall percolate the cotton wick, and drop into the hot water underneath, is easily regulated. If it do not drop with sufficient rapidity, one or two of the threads of the cotton are to be removed. If it drop too rapidly, this is corrected by pressing in the cork more tightly, or introducing one or two additional threads of wick.

With this apparatus, the impregnation of the air of even a large chamber is so perfect, that the window curtains are tinged blue by the action of the vapour of iodine. Solution of chlorine, the balsams, turpentine, preparations of camphor, stimulating or sedative remedies may, by this apparatus, be diffused in any quantity through the air which a patient is respiring. The rate of evaporation, which generally gives a sufficiently strong impregnation to the air, is, when the tincture of iodine drops from the cotton wick at the rate of from six to eight drops per minute. At this rate about six drachms of the tincture will be evaporated in an hour, and as every particle of the iodine is diffused in watery vapour, through the air, there are thus diffused in the minutest state of division through the air, in every hour, about thirty grains of iodine.

If we suppose the patient to inhale only one-twentieth of the iodine evaporated, he will inhale in each hour, and apply to the diseased sur-



faces one grain and a half of iodine in a state of the most minute division or solution. This quantity we know is quite sufficient to exert a decided action upon scrofulous ulceration.

From having kept no regular record of the majority of the cases in which I have employed medical inhalation, I am unable to give more than the few following; but they are of a sufficiently positive character, to prove the value of the local application of remedies to diseases of the respiratory organs.

The first case was my own, a chronic inflammation of the mucous membrane of the trachea, gradually increasing in the severity of the symptoms, until at last so correctly did they correspond with those of phthisis trachealis, that but little doubt was entertained by my medical friends of its terminating as that disease generally does. Without pretending to give all the particulars of the treatment, I shall confine myself to the more important points, sufficient however to prove that few, if any remedies, were left untried.

As always happens in diseases of a similar character, I suffered every winter for many years a great aggravation of all the symptoms, caused by the unavoidable exposure incident to the practice of my profession, and could only procure relief by resorting to the most active treatment by general and local bleeding frequently repeated, an almost perpetual blister of Spanish flies, or tartar emetic, a low diet, and the

constant use of those medicines usually given in such cases internally.

During the summer there was a very great abatement of the more prominent symptoms, but each succeeding winter clearly proved, that the disease was gradually gaining strength, as evinced by the earlier appearance of all the symptoms, the necessity of a more frequent resort to the remedies above named, and the greater time required before they produced their usual beneficial effects.

Such continued to be the case until the fall of 1832, when, from the great severity of the attack, its early appearance, and great difficulty experienced in alleviating the more prominent symptoms, I was advised by my medical friends to try the effects of a long sea voyage, and, I accordingly embarked for Buenos Ayres. The most decided benefit resulted from the voyage and residence there, and so much improved was I upon my return in May, that I resumed my practice, but unfortunately having been caught in several rains, I experienced a return of the disease, which proved so violent and intractable, that I was then advised to abandon my profession for several years, and try the effects of a residence in the milder and more equable climates of Madeira, or south of Europe.

In October, 1833, I sailed for Madeira, and by a regular continuance of the active treatment, *ut supra*, in conjunction with the equable temperature of that climate, as well as the absence from exposure, I was enabled to pass a very

comfortable winter. While there, in addition to the other treatment, I introduced a large seton in the upper part of the breast, which proving very beneficial, I determined to keep up the influence of so valuable and constant-acting a remedy, and as the friction of the clothes, and exercise, caused it to wear out, I was compelled for the same reason to introduce six in the course of two years and a half, during which time the discharge was kept up. At one time I had two in at once, one in the throat, longitudinally, and the other in the upper part of the breast.

By such means I was enabled to prevent an increase of the disease, and enjoy a freedom from the usual severity of the symptoms, which had previously existed during the winter; a continuance, however, of slight pain and uneasiness caused by a constant tickling sensation in the trachea, with a continual expectoration, though diminished in quantity, fully proved that a perfect cure had not yet been accomplished. In the spring I sailed for Italy, and passed the summer and fall with but little inconvenience; but during the winter I was again obliged to have recourse to the usual remedies, and in addition to those already mentioned, I applied every two days three or four leeches.

In looking over some medical works, my attention was directed to the use of inhalation in some of the diseases of the pulmonary organs, and I soon determined upon calling its remedial power into requisition. I had an inhaler made upon the principle of that long since proposed by

Mudge, and commenced inhaling through a hot infusion or decoction of various medicinal substances.

Of the great benefit resulting from this local application of remedies I soon became convinced, and from that time to the present, increased experience has confirmed my opinion of the positive remedial value of medical inhalation, in a number of those diseases incident to the respiratory organs. I may properly in this place incidentally remark, that the use of inhalations afforded great relief to many of the distressing symptoms attendant upon confirmed consumption in two English gentlemen whom I attended; and also, that in one case of asthma of many years standing, the employment of the inhaler afforded greater, and more immediate and permanent relief, than had been experienced by the individual from the various remedies generally prescribed for him.

In the fall of 1837 I returned to Philadelphia, very much improved; but, doubtful of the propriety of resuming my profession, and incurring the great risk attendant upon the necessary exposure incident to it, I determined upon embarking in another business in the southern part of our country, and accordingly selected New Orleans, where I have now resided nearly four years.

The first winter passed there, I experienced so little uneasiness, that I was only occasionally obliged to resort to the inhaler, but in the second I unfortunately contracted a very severe cold,

which had the effect of bringing once more into action, the disease of my throat with all the usual unpleasant symptoms.

Now it was I decided upon abandoning the usual mode of inhalation through hot fluids, having determined to try other remedies than those I had heretofore employed. It was with no little pleasure I discovered in the course of a few days, that inhalation carried on through a fluid at the ordinary temperature of the atmosphere, to which was added two or three times a day, a small quantity of a mixture composed of extract of cicuta, balsam copaiva, creosote, tincture of cicuta and peach water, produced a speedy and most decided effect; for in about ten days, without the aid of any other remedy, and engaged as I was in business, I succeeded by this remedial measure in completely restoring my throat to its former, comparatively speaking, healthy condition. Since that time I have regularly every winter experienced one or two severe attacks of the same kind, and I am desirous it should be distinctly understood that in no one instance has medical inhalation failed to arrest in the course of a few days, the progress of the disease, and restore the part to its now natural condition, and that, as before remarked, without employing any other remedy, changing my diet, or confining myself to the house.

Although I lay particular stress upon these facts as evincing the extraordinary curative powers of medical inhalation in diseases of the air passages, I by no means wish to be understood as

recommending it to the exclusion of other remedies, whether internal or external; for, as previously remarked, I am desirous that the local application of remedies to diseases of the respiratory organs should be regarded solely as an auxiliary, but of the most decided and valuable character.

Attacks similar to those just noticed occurring before I was accustomed to employ medical inhalation, invariably required months of the most active treatment, previously to my being able to subdue the more severe and painful symptoms of the disease, and it was not until the commencement of summer, that I could dispense with the employment of many of the remedies in use.

If the result of medical inhalation in my case alone, is not sufficient proof of its very decided and active remedial powers, I am at a loss to imagine what further or more conclusive evidence could possibly be adduced in its favour.

Case second. Mr. R. labouring under a chronic disease of the mucous membrane of the trachea, and upper portion of the bronchiæ, attended with pain, constant uneasiness in those parts, as if from the presence of some foreign substance, and disposition to cough, with the expectoration of sputa of a muco-purulent character. He had been under treatment for several years, but finding the disease to be gradually increasing, and not much under the control of the ordinary remedies, he removed from the north to the more temperate climate of New Orleans. Much benefit was not derived from this change, in con-

sequence of his being obliged to expose himself to all weather in the pursuit of his business.

From an examination of the particulars of his case, it appeared to me that medical inhalation offered more than a reasonable probability of materially alleviating his disease, if it did not effect a perfect cure, and he accordingly determined to give it a trial. The medicines employed in this case were the balsam copaiva, extract of cicuta, Hoffmann's anodyne, spirits of camphor, and laudanum, so combined as to enable him to gradually increase the strength of the medicated fluid through which he was directed to inhale frequently during the day, gradually increasing the quantity added to the inhaler from day to day. With the exception of an occasional pill of blue mass, rhubarb and ipecacuanha, to regulate the bowels and hepatic secretion, and the daily application morning and night of a strong liniment to the throat and breast, medical inhalation was exclusively relied upon. Our brightest hopes were not disappointed, for in the course of a few weeks there was a well marked diminution of all the symptoms, and before the spring arrived the cough and expectoration had ceased, and he considered himself perfectly cured. It is proper to remark that this gentleman was not confined one day to the house, though directed to dress warmly and avoid all unnecessary exposure by day or night; and that in respect to diet, he was merely requested to refrain from high seasoned food, and wine, or any other stimulating drink.

In proof of the estimation in which this gentleman holds medical inhalation, it may be remarked that he has procured inhalers for several of his acquaintances similarly afflicted, and in each case, he informs me, its use has proved decidedly beneficial.

Case 3. Mr. J. has been suffering many years from repeated attacks of asthma. As he was anxious to try the effect of the inhaler, I prepared him a mixture composed of the extract of cicuta, balsam copaibæ, Hoffmann's anodyne, laudanum and peach water. He was directed to inhale four or five times during the day, from five to ten minutes at each inhalation; and for the first three or four days half a teaspoonful of the inhaling mixture was added morning and evening to the inhaler; at the expiration of that time the quantity to be added, as well as the duration of each inhalation, was to be gradually increased.

The effect produced was quite equal to our expectations, for in a short time he was seized with an attack, which he was enabled to arrest in its commencement, and speedily remove all the usual symptoms. He has since informed me, that he has continued the use of the inhaler, though irregularly, and that his attacks are neither so frequent nor so severe as formerly, and that when one does occur the free use of the inhaler affords him speedy relief.

Case 4. This is adduced as evincing in the most decided manner, the local and constitutional action of remedies applied by inhalation in a case



of consumption. The fact of the individual being a physician of extensive experience renders it more valuable.

Doctor — has been for several years labouring under all the symptoms of consumption, for which the usual remedies have been employed; the disease has, however, within the last few months advanced more rapidly.

The cough is now very frequent, with copious expectoration; a tolerable night's rest can only be procured by taking large doses of opium, and the almost daily use of aperients is required to open the bowels, his appetite much impaired, and general strength rapidly failing.

Conversing with the Doctor upon medical inhalation, I recommended his trying the effect of cyanuret of potash, extract of cicuta, or opium, a small quantity of tincture of cicuta or opium and peach water, used by inhalation several times a day, and just before going to bed inhaling from fifteen to twenty minutes each time. The plan was adopted, and the last time I had the pleasure of seeing the Doctor, he spoke in the highest terms of the effects produced by inhalation. He is no longer obliged to take opiates internally, and sleeps well the greater part of the night, his cough has decreased, the bowels are quite regular, and his appetite and strength have very much improved. The inhalation in this instance was through a fluid of the temperature of the atmosphere.

Case 5. A gentleman of robust frame, and excellent general health, troubled for three suc-

cessive winters with an inflammation of the fauces and larynx, attended with a hacking, irritating cough, and the expectoration of mucus at times streaked with blood. He was under treatment nearly all the last winter, without, however, having the disease entirely removed.

He complains now, June 1841, of uneasiness in the back part of the mouth, a tickling sensation in the larynx, and at times a hacking cough; the tonsils are considerably enlarged, and on the roof of the mouth and arch of the palate, are a large number of small ulcers. The same parts, and as far down the throat as can be seen, are considerably inflamed, which has existed to a greater or less degree for the last six months.

I directed him to take occasionally a pill composed of blue mass, rhubarb, and ipecacuanha, and to rub his throat well morning and evening with the following mixture:—

|                            |           |
|----------------------------|-----------|
| * R Camphor.               | ℥ij.      |
| Mur. Soda,                 | ℥j.       |
| Aq. Ammon. fort.           | ℥j.       |
| Spts. Vin. Rect. q. s. ad. | ℥viij. m. |

\* Of the various liniments which I have been accustomed to employ in diseases of the throat and lungs, as a gentle counter-irritant, as well as to strengthen the parts, and render them less susceptible to the action of cold, no one has produced such general good results as the above, varying the proportions, to render it more or less stimulating. I always direct it to be applied with a small piece of close sponge. In very many chronic diseases I have found this liniment very valuable. I have no doubt that the antidynous ammoniacal preparations of Doctor

He was also directed to allow a small piece of saltpetre to dissolve in his mouth, and gradually trickle down his throat, four or five times a day, and to inhale three or four times a day from ten to fifteen minutes each time through cold water, to which a half teaspoonful of the following should be added, at first once a day and gradually increased:—

|                            |         |
|----------------------------|---------|
| R Camphor.                 | ℥ij.    |
| Bals. Copaibæ,             | ℥ss.    |
| Spts. Camphor.             | ℥vj.    |
| Tr. Opii.,                 | ℥vj.    |
| Aq. Amyg. Persic. q. s. ad | ℥iv. m. |

In four days a decided improvement was visible, ulcers disappeared, surface of the mouth and fauces much less inflamed, and a great decrease of the uneasiness in the larynx. In three weeks all sense of uneasiness had disappeared, inflammation entirely removed, and the tonsils reduced in size nearly one half.

Case 5. Last winter, at the request of a friend of a gentleman passing the winter in the island of Cuba for his health, I sent an inhaler and a mixture, with directions for use, suitable for, as far as I could learn, a chronic inflammation of some part of the air passages, or as he termed it, bronchitis.

Granville will be found extremely serviceable in all chronic affections of the respiratory organs as an external application, repeated once or twice a day, when we do not require their vesicating operation.

Some months afterwards I had the pleasure of receiving a very flattering letter from the gentleman, requesting another bottle of the mixture; and the following extract from his letter clearly shows his opinion of the effects produced. "I have been using your inhaler for about two weeks, and find more benefit from it than from all other remedies I have ever tried, and as I wish to keep up the use of the inhaler, and shall not return here till next fall, my bottle will not hold out. My cough has become now much diminished, as also the expectoration, and by a persevering and faithful application of the remedy, I hope it will entirely cure me."

It appears that this gentleman's disease was considered by his physicians to have been dyspepsia, complicated with chronic bronchitis, which last, if not cured, would ultimately terminate fatally.

The diseases for the treatment of which medical inhalation may justly be recommended, are all those affecting the mucous membrane of the respiratory organs, or the substance of the lungs, whether of an acute or chronic character, and I shall endeavour to point out a few general rules for its practical application, which may prove useful to those who have not had their attention previously directed to the subject. As has been before remarked, there seems sufficient ground for believing that a regular exercise of the lungs, by a gradual and daily increased expansion of those organs, will prove serviceable as a preventive of disease, whether arising from an heredi-

tary predisposition, or to be apprehended from a natural debility, or want of healthy action of the pulmonic system.

To effect so desirable an object, inhalation may be carried on through water, at the temperature of the atmosphere, either by itself or with some salt added to it, or an infusion of any of the vegetable tonics, allowed to become cold before being used.

It may be proper to remark, that in all cases I order the inhaler to be commenced by slow degrees, thereby accustoming the patient to its use, and the lungs to the progressive increased action which is required of them.

For the first week I recommend the inhaler to be used from five to ten minutes, and repeated three or four times a day; after that period it may be slowly increased, until it can be easily performed for thirty or forty minutes, the same number of times a day. Under all circumstances I lay it down as a positive rule, that the inhaler should not be continued so long as to occasion fatigue or other unpleasant sensation; and when using the more active articles, I am equally explicit in ordering but a small quantity to be added to the inhaler, each time it is used, for several days, and then very gradually increasing both the quantity of medicine added, and the length of time and frequency of using the inhaler.

After having used the inhaler in this manner for several weeks, I am accustomed in many cases to direct the patient gradually to expand the lungs by one continuous inhalation, as far as can be borne without inconvenience, retaining

them in that state a short time, and then allowing the air to pass slowly through a small separation of the lips.

To persons unaccustomed to these trials, it is astonishing to witness the increased degree of expansion acquired by the lungs without any inconvenience in the course of a few months.

In all acute diseases of any part of the respiratory organs, where it is so desirable to produce a resolution of the inflammation as quickly as possible, medical inhalation will prove an exceedingly valuably auxiliary to such other remedies as may be deemed necessary. Inhalation in these cases should be carried on as frequently and for as long a time as can conveniently be borne, and warm water by itself, or infusions of any of the mucilaginous articles will be found most appropriate. In those cases attended with great irritability or disposition to cough, one or more teaspoonsful of the following may be added with great advantage: Two drachms of the extract of opium or cicuta, rubbed down in two ounces of water.

At times a small quantity of laudanum or tincture of cicuta added to the warm water, or infusion, will be found useful for the same purpose.

Each time the inhaler is used in acute diseases, it is proper to renew the warm fluid; and during the period of inhalation a small quantity of hot water should be added occasionally to preserve a proper temperature, or the inhaler may be placed in a bowl or pitcher containing boiling

water. In chronic diseases of the air passages, I have always observed more benefit to follow inhalation through fluids at the temperature of the atmosphere, though I have sometimes ordered it to be done through warm fluids upon going to bed, and resuming the cold ones in the morning, with, as appeared to me, considerable benefit.

The following medicines are those I am most accustomed to employ in chronic diseases of the fauces, larynx, trachea, or bronchiæ; and from the inhalation of which, selecting and combining such as appeared best calculated for each case, I have been enabled to derive great benefit from medical inhalation.

Balsam, or oil of copaiva, kreosote, spirits of turpentine, cyanuret of potash, the extracts, as also the tinctures of opium, cicuta, stramonium, hyosciamus, and belladonna; camphor, either in a saturated tincture, or rubbed down with mucilage, assafoetida dissolved in water, sulphuric ether or Hoffmann's anodyne.

I generally order a two or four ounce mixture of such of the above as may appear desirable, and in such proportions as will allow the quantity to be added for inhalation to be properly regulated, beginning with from twenty to forty drops once or twice a day, and gradually increasing, as the patient becomes accustomed to its use.

Before having read the observations of Sir Charles Scudamore, I had used iodine by adding a few drops of the tincture to the inhaler, but from the unpleasant sensations occasioned by its inhalation I did not continue it long. I have,

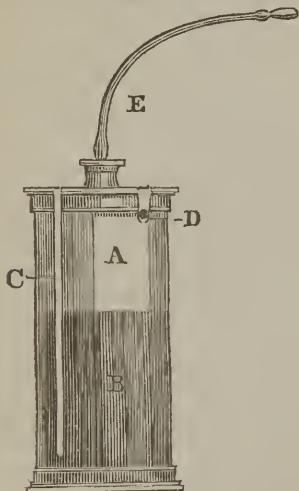
however, lately tried it, in the manner directed by Sir Charles upon a gentleman troubled with a chronic affection of the trachea, attended with, at times, a slight hacking cough, and the expectoration of small round globules of a rather hard consistence, and as appears to me with decided advantage, though it has not been continued sufficiently long to warrant the formation of a decided opinion as to its permanent effect.

The regular employment of the iodine inhalation, two or three times a day, for four weeks, since the above was written, enables me to state that there is now no doubt of the effect produced; the uneasiness in the trachea, and the expectoration having very materially diminished, and the patient expressing himself highly pleased with the prospect of a perfect cure. The results of this case I consider very important, for besides the additional proof it affords of the undeniable power of the local application of remedies to diseases of the air passages, it clearly shows that the inhalation of iodine, &c. as proposed by Sir Charles Scudamore, carried on through a fluid of the temperature of the atmosphere, produces similar effects as when used warm; and although I am aware that with these and all other articles, the warm inhalations possess more power than cold ones, I cannot but think there are cases in which one will be found preferable to the other; their relative value, however, must be determined by more extensive observation.

The following figure represents the inhaler which I had made by Mr. Kuemerle, machinist,



No. 2, North Eleventh street, Philadelphia. Having tried every medicine which in all probability can be used for inhalation without any effect being produced upon the substance of which the inhalers are made, I can strongly recommend them as in every respect perfectly adapted for medical inhalation.



A, a vessel capable of containing about twelve ounces of fluid. B, fluid contained in inhaler. C, a tube open at both ends, extending from the top to within a quarter of an inch of the bottom, to allow a free ingress of air. D, a valve rendering the inhaler more complete, and prevent-

ing the fluid from being forced out of the tube C, in the event of individuals breathing into the inhaler. E, a flexible metallic tube fifteen inches long, with a mouth piece, through which inspiration is to be carried on.

The manner of using the inhaler is as follows:

When warm water, infusions, or decoctions are to be employed, unscrew the flexible tube, and pour into the inhaler as much as will half fill it, replace the tube, and carry on the process of respiration by inhaling through the tube, and exhaling through the nostrils or mouth, without blowing into the inhaler.

When the more active remedies are used, it is necessary to pour into the inhaler five or six table-spoonsful of hot or cold water, as may be directed, then add the quantity of the medicine ordered, and inhale as above directed. By removing the flexible tube, the contents of the inhaler can be poured out, and renewed when required for use.

It is proper to remark, that when the more active remedies are used with cold water, it is only necessary to add the quantity prescribed for each inhalation, to the fluid already in the inhaler, until it becomes about half full, when a part may be poured out.







NATIONAL LIBRARY OF MEDICINE



NLM 03274804 0

ARMED FORCES

MEDICAL LIBRARY